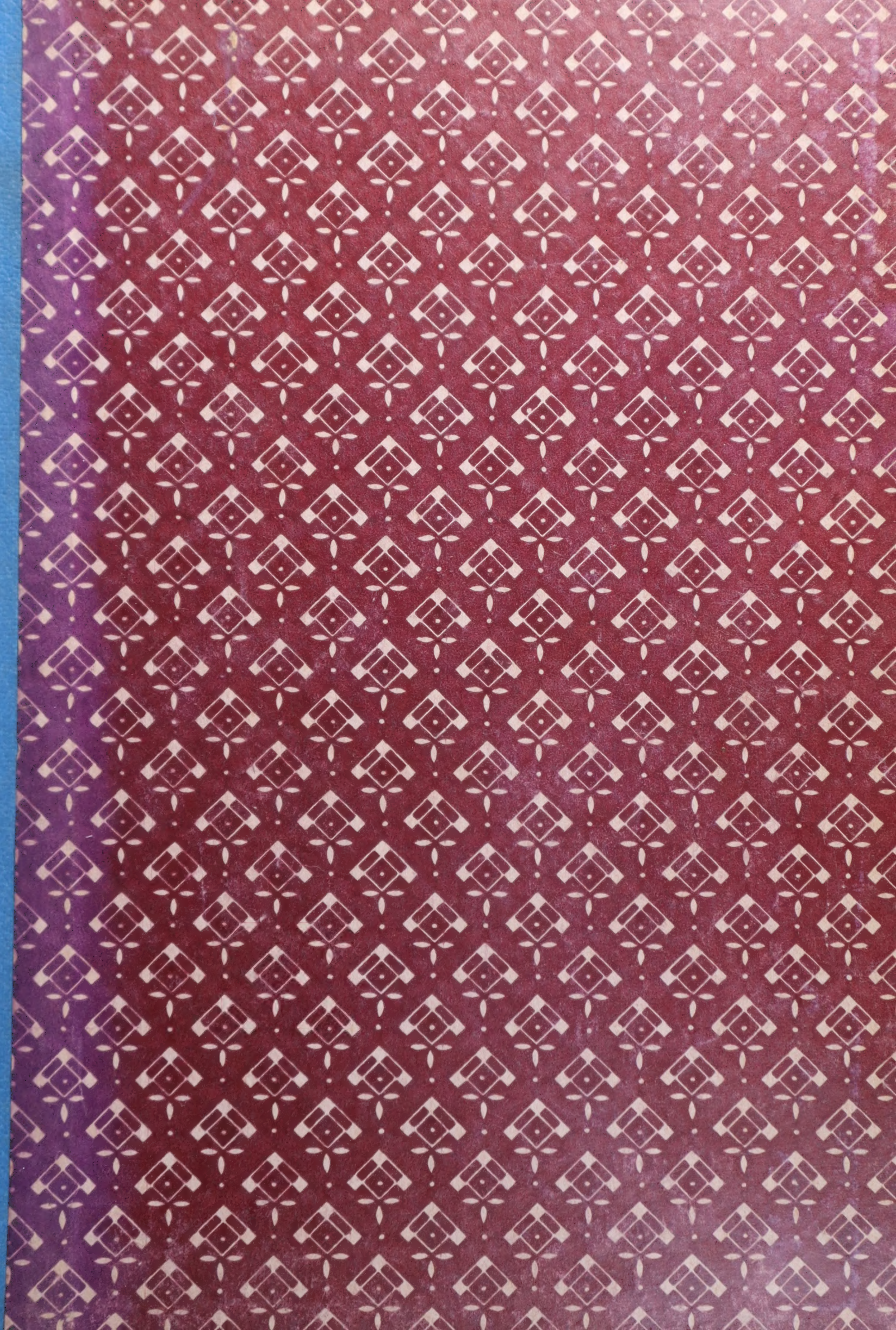




INTERNATIONAL FOOD INFORMATION SERVICE.

SHINFIELD, READING RG2 9AT, ENGLAND.

SYNTHETIC DAIRY PRODUCTS.

The following abstracts have been selected from

'Food Science and Technology Abstracts'

vol 1-3

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Concentration of soymilk.
Yau-Lai Lo, W.; Steinkraus, K. H.; Hand, D. B.
Food Technology (Champaign) 22 (8) 1028-30 (1968)
[10 ref. En] [New York State Agric. Expt. Sta.,
Dept. of Food Sci. & Technology, Cornell Univ.,
Geneva, New York 14456, USA]

A logarithmic relationship was observed between the apparent viscosity of soymilk and the solids content. When soymilk was conc. to 27% solids, it was a thick, resilient gel. The addition of 0.5% sodium sulphite had the effect of reducing the apparent viscosity of conc. soymilk at solids contents <20%. Sodium sulphite at concn. of 0.05% was found to be relatively ineffective in reducing the viscosity of conc. soymilk. Addition of sucrose to the soymilk before concn. had the effect of increasing the viscosity of soymilk. A sweetened condensed soymilk evaporated at 82°C showed better redispersibility of the protein than soymilk evaporated at lower or higher temp. AS

1 G 15

Nutritive quality of simulated milk mixtures prepared from tropical plant products.

Standal, B. R.; Kian, H. G.

Journal of Food Science 33 (4) 426-31 (1968) [37 ref. En] [Dept. of Nutrition, Hawaii Agric. Expt. Sta., Univ. of Hawaii, Honolulu, Hawaii, USA]

Using products of tropical plants taro, soybeans and coconut for carbohydrate, protein and fat, mixtures to simulate cow's milk were prepared and tested on rats for the quality of protein, the utilization of Ca, the effect of vitamin B₁₂ and the composition of blood and liver. Ca retention was significantly better for the milk than for the mixtures. The quality of the protein was measured by the Protein Efficiency Ratio and the Net Protein Utilization (NPU). Coconut milk in the diet raised the NPU of the mixtures from 36.5 to 41.2 by raising the N storage in the body. Vitamin B₁₂ raised the NPU of Poi-11 from 40.4 to 50.0 by raising both the N intake and the N storage, the latter to a greater degree. The NPU of the mixture Poi-11 ranged from 50.0 to 51.1 and were similar to the NPU of 54.4 for Sobee, were lower than the NPU of 76.6 for Similac and 80.8 for milk. Blood haemoglobin and liver lipid and moisture of rats fed the mixtures Poi-11 and milk were similar and within the normal range. Poi-11 is similar to Sobee for protein quality, similar to milk for haemoglobin formation and deposition of lipid and moisture in the liver, and poorer than milk for the retention of Ca. AS

1 P 95

Imitation sour cream.

Little, L. (Battelle Development Corp.)

United States Patent 3 391 002 (1968) [En]

Sour cream type products are prepared without butterfat or cultures by mixing an edible protein with an edible non-dairy lipid, chemical emulsifiers, and whey separation inhibitors (gums). The product is pasteurized, homogenized and cooled and an edible acid then added. IFT

2 D 70

Paediatricians endorse imitation milk standards - with changes.

Anon.

Food Chemical News 10 (28) 8-9 (1968) [En]

The American Academy of Pediatrics' Committee on Nutrition has endorsed the Food and Drug Administration's proposed food standards for imitation milk products [Fd. Chem. News, (1968) 10 (27) 19] but recommended changes. It was recommended that, (i) $\geq 5\%$ by wt. of the lipid should be present as linoleate in the form of a glyceride; (ii) the minimal shelf life be specified; (iii) the specific nature of artificial flavours and colours be specified on the label; (iv) that products containing casein should not be labelled 'dairy free' as 15-20% of infants allergic to cows' milk are allergic to casein; (v) that vitamin E levels are adjusted; (vi) that the protein content be stated in a way that did not include non-protein N. The use of 'substandard' labelling was condemned. EAW

2 G 40

Yields of extracted solids in soymilk as affected by temperature of water and various pre-treatments of beans.

Lo, W. Y.-L.; Steinkraus, K. H.; Hand, D. B.; Wilkens, W. F.; Hackler, L. R.

Food Technology (Champaign) 22 (10) 1322-24 (1968) [6 ref. En] [New York State Agric. Expt. Sta., Dept. of Food Sci. and Technology, Cornell Univ., Geneva, New York 14456, USA]

Soybeans soaked 8 h before extraction yielded higher milk solids than unsoaked beans or bean flour in spite of a loss of 1.6% solids in the soak water. An extraction temp. between 55 and 65°C gave the highest yields of milk solids regardless of pre-treatment. For pre-soaked beans, extraction temp. ranging from 45 to 80°C gave higher yields of solids than other temp. or pre-treatments. Extraction temp. >85°C resulted in substantial decreases in solids. A gradual rise of pH of soymilk was observed as extraction temp. increased from 30 to 95°C. AS

2 N 37

Imitation cream cheese spread.

Elebogen, G. (Vitamins, Inc.)

United States Patent 3 397 995 (1968) [En]

Emulsified edible spreads resembling cream cheese are produced by homogeneously mixing 15-40% fat (by wt.), 0.1-2% stabilizing vegetable gum, 5-13% phosphoprotein solids, 0.2-3% lactic acid, and water to 100%, and then recovering from the mix a solidified spreadable product. IFT

2 P 176

Imitation cream cheese spread.

Elebogen, G.; Baron, M. (Vitamins, Inc.)

United States Patent 3 397 994 (1968) [En]

The invention covers dietary spreads resembling cream cheese and containing 15-40% fat which is high in polyunsaturation, 5-13% phosphoprotein solids and water. IFT

2 P 238

Sour cream product.

National Dairy Products Corp.

British Patent 1 124 238 (1968) [En]

Commercial sour cream compositions are prepared by combining sour cream with 0.15-0.5% low methoxyl pectin, 0.20-0.40% gelatine, heating at 155-185°F, acidifying and homogenizing. IFT

3 G 91

Imitation-cheese spread based on peanut protein.

Krishnaswamy, M. A.; Patel, J. D.

Milchwissenschaft 23 (10) 618-23 (1968) [14 ref.

En, de] [Central Food Technological Res. Inst., Mysore 2, India]

'Cheeses' made from Lac-Tone (a vegetable toned milk prepared from groundnut protein), using a mixed Streptococcus thermophilus and Str. lactis starter culture and various rennet or pepsin coagulants, had higher moisture and N % and lower fat % than controls made with milk. None of the Lac-Tone 'cheeses' had acceptable organoleptic properties and remained crumbly and brittle during ripening, but became palatable when processed into spreads. CDA

3 P 315

Vegetable dairy cream cheese looks, tastes like real thing at 10 cents less a pound.

Anon. (Editor)

Food Processing 29 (11) 20-21 (1968) [En] [Putman Publishing Co., Putman Publishing Building, 111 E. Delaware Place, Chicago, Illinois 60611, USA]

Advanced processing of 'vegetable' dairy cream cheese, involving pasteurization, homogenization, culturing, packing and incubation, gives a shelf-life of >8 wk. Another method uses direct acidification instead of culturing, giving a shelf-life of ≥ 18 wk. Formulae for dairy soft cheese and vegetable dairy cream cheese made by these methods are given. EAW

Anon. Sterilized milks and cream.

Food Processing 29 (11) 26 (1968) [En]

Unique beverage fat, which is low in polyunsaturated fatty acids (41.2% of total fatty acids), can be poured at temp. 70-95°F, and used to make filled milks, is described. EAW

4 G 125

[Substitutes for milk and milk products expand in the USA.] [A review]

Mikkelsen, P.

Nordisk Mejeri-Tidsskrift 34 (9) 174-78 & 181 (1968) [6 ref. Da]

4 G 126

Low calorie table spread.

Unilever Ltd.

British Patent 1 129 923 (1968) [En]

Low calorie table spreads contain hydrophilic colloids and 30-60% of a fat with a dilatation of <275 at 20°C; they are suitable as replacement for butter or margarine. IFT

4 G 141

Banana beverage powder.

Anon.

Soybean Digest 29 (1) 10 (1968) [En]

An improved process for large scale extraction of high grade protein from soybeans was developed at the Technion Res. and Development Foundation, Haifa, Israel. Applications include production of a new protein-enriched powder, especially suitable for infant feeding, by combining the protein with banana puree and spray-drying. Flavour, colour and nutritive value of bananas were unimpaired. Soy protein was also promising for making cheese and increasing protein level of bread; 6% of flour could be replaced with soy protein. RM

4 G 160

Better Sufu.

Anon.

Agricultural Research (Washington) 17 (6) 6 (1968) [En]

N.S. Wai of the Acad. of Sci., Taiwan, describes the production of Sufu (a soybean cheese) with an acceptable flavour. The starting material is tofu, a soybean curd [Agric. Res., (1960) March p.5], which is cut into $\frac{1}{2}$ inch cubes, immersed in an acid-saline solution, sterilized, inoculated with the fungus *Actinomucor elegans* and incubated at 68°F for 2-3 days. The changes occurring during fermentation include proteolysis and lipolysis. Finally it is aged in a solution of NaCl or other fungistatic agent and flavours e.g. garlic, wine, pepper are added. Methods of preservation include canning, coating with paraffin wax, storing at room temp. in an inert atm. or freeze-drying. RM

4 N 163

Freezable fat emulsions.

Unilever Ltd.

British Patent 1 132 279 (1968) [En]

Freezable fat emulsions for use in coffee are prepared by forming an aqueous emulsion of 7-35% coconut oil or hardened sunflower oil stabilized by alkali metal caseinate. IFT

Foodstuffs.

Unilever Ltd.

British Patent 1 127 281 (1968) [En]
A mixture comprising curd, non-milk fat, emulsifying salts, flavouring substances and, if desired also extra amino acids (e.g. protein hydrolysates), is homogenized, pasteurized, and packaged without ripening with micro-organisms. Suitable flavourings are for examples tomato puree, lemon essence, paprika powder, cocoa powder, vanilla, or butter flavour, used singly or in mixtures. The invention is especially suitable for making products resembling processed cheese. Increased yields may be attained by using milk sterilized at a very high temp., e.g. 125-140°C, in order to precipitate whey proteins and recover them in the products. The application of the invention is given in 11 examples. FL

4 P 389

Improved process for the production of recombined whippable cream or cream-like product.

Bratland, A.

British Patent 1 134 837 (1968) [En]

A whippable cream or cream-like product, contains $\geq 12\%$ (dry wt.) of butterfat or vegetable fat combined with a liquid consisting of water and milk constituents, the latter comprising $\geq 20\%$ (dry wt.) skim-milk, $\geq 5\%$ (dry wt.) buttermilk or a low-fat milk fraction obtained by centrifuging cream with $\geq 20\%$ fat until its fat content is increased to $\geq 40\%$. The liquid is prepared preferably from water and dried skim-milk and dried buttermilk. Details of the application of the invention are given in 7 examples. FL

5 G 181

[Synthetic foods.]

Breth, F. E.

Voeding en Techniek 3 (2) 30-33 (1969) [NL]

The great potential of soya beans as a basic raw material for synthetic foods is stressed and brief, illustrated descriptions are given of several synthetic foods, including: synthetic or textured meat based on soya protein; composite flours based on one or more ingredients including soya beans, maize, fish protein concentrates and dried skim-milk; and high-protein drinks (filled milks), including Vita-Soy. EJM

5 H 487

The role of ingredients in the formulation of coffee whiteners.

Knightly, W. H.

Food Technology (Champaign) 23 (2) 171-73, 177, 180 & 182 (1969) [14 ref. En] [Atlas Chem. Ind., Inc., Wilmington, Delaware 19899, USA]

The effects of ingredients and processing on product quality, stability and performance are discussed. Among ingredients, special attention is given to effects caused by fat (mp, globule size); protein (colloidal stability, flavour); carbohydrate (viscosity relationships); emulsifiers (hydrophil-lipophil balance, feathering); and stabilizers (colloid, viscosity, metal complexing). Homogenizing (fat globule size, clumping), cooling and, in the case of powdered products, spray drying (preconcn. spray nozzle opening and pressure) can significantly affect the final product. AS

6 D 309

Food standards.

Pearson, D.

Review of Nutrition and Food Science 1969 (14) 10-13 (1969) [En] [Quality Control Section, Nat. Coll. of Food Technology, Weybridge, Surrey, England]

The author outlines the main points of the Statutory Instruments and Codes of Practice relating to flour, bread, chocolate cake, milk, cream, full cream condensed milk, dried milk, filled milks, cheeses, butter, margarine, ice-cream, soft-drinks, jams, marmalade, fruit curds, canned fruit and vegetables, meat paste, fish paste and cakes, meat pies, sausage rolls, gelatin, suet, vinegar, tomato sauce, salad cream, salt mustard, curry powder, sweeteners, coffee, cocoa and alcoholic drinks. BFMIRA

6 P 553

Imitation and filled milk products in the USA. [A review]

Hedrick, T. I.

Dairy Industries 34 (3) 127-32 (1969) [6 ref. En, fr, de, es] [Dept. of Food Sci., St. Univ., East Lansing, Michigan, USA]

In this review the author deals with the present legislation affecting the sale of imitation and filled milk products, sales output and the extent of genuine dairy product replacement, manufacturing costs and selling price, the manufacturing equipment needed and the dairy industry's involvement in the manufacture of these products, marketing methods, and the flavour and nutritional quality of imitation and filled products. Details are given of the ingredients, manufacture and packaging of imitation milk, coffee whitener, whipped topping, sour cream, dressing base or dip base, and mellorine, and the composition of certain dairy products is compared with that of their simulated counterparts. The ways of meeting the challenge of imitation are discussed. MPH

6 P 554

Synthetics: dairy industry ready to take another look.

Rennie, J.; Smith, R.

Food in Canada 29 (3) 50-51 & 72 (1969) [En]

Competition between dairy products and synthetic materials is discussed. RPC

7 G 255

Fermented food processes.

Stanton, W. R.; Wallbridge, A.

Process Biochemistry 4 (4) 45-51 (1969) [34 ref. En] [Microbiology Section, Tropical Products Inst., 56-62 Grays Inn Road, London, WC1, England]

Coarsely ground commercial grade cassava flour was pasteurized at 70°C for 18 h without gelatinization. Homogenates containing 1-2 million spores/ml either *Rhizopus oligosporus*, *R. stolonifer*, *R. oryzae* or *R. arrhizus* were mixed into the moist flour for ~11 min. The mix with a pH of 5.5 was extruded into rods of ~4 mm diam. having a moisture content of ~45%. The rods were packed into a shallow tray where the dominant fermentation occurred under aeration at 30°C and 95% RH for 40-80 h. The product (a vegetable cheese) was ripe when sporulation began. The protein content of the product increased 7 fold over the original cassava material when ammonium salts, Mg and P were added to original mix. Fe, Zn and Mn may be inhibitory or stimulatory depending on the flour. The product is at present undergoing toxicity tests. A table of raw materials, fermentation organisms and nutritional value of 26 products of fermentation is given. JRG

7 G 271

Will you be using soybeans for new, improved candies?

Rakosky, J., Jr.

Manufacturing Confectioner 49 (2) 47-50 (1969) [En]

Composition, uses and protein efficiency ratio of defatted soy flour, soy flour concentrate and isolated soy protein, are given. Potential utilization of soy protein in imitation dairy products and in simulated meat products is considered. Suggested formulations for a soy protein powdered whip topping and for a soy protein beverage are given. A product developed by Central Soya to replace completely or partially nonfat dry milk in bread (up to the 3% level), is mentioned. VJG

7 P 619

Vitamin E content of milk, milk products, and simulated milks: relevance to infant nutrition.

Herting, D. C.; Drury, E.-J. E.

American Journal of Clinical Nutrition 22 (2) 147-55 (1969) [38 ref. En] [Res. Labs., Distillation Products Ind., Division of Eastman Kodak Co., Rochester, New York 14603]

Samples of milk, milk products and simulated milks were analysed for vitamin E content by column or thin-layer chromatography and for polyunsaturated fatty acids by gas-liquid chromatography. Conc. of α -tocopherol (mg/quart) was: human milk (fresh-frozen, freeze-dried or pasteurized), 1.14; homogenized cows' milk, 0.1 and 1.06 in spring and autumn respectively; evaporated milk, 0.6; condensed milk, 1.29; reconstituted dried skim-milk, 0.02; reconstituted simulated milk, 3.46-6.80; reconstituted hypoallergic milk replacement formulas, 2.30-7.67 and bovine colostrum, 4.33. Polyunsaturated fatty acids varied from 4% of fatty acids in cows' milk to 50% of fatty acids in hypoallergic milk replacers. SPT

8 C 359

[Investigations on bacterial contamination of synthetic cream fillings in pastries.]

Orientierende Untersuchungen zur bakteriellen Belastung von Cremefüllungen in Backwaren.

Döll, W.; Dierkes, P.

Alimenta 8 (2) 41-42 (1969) [10 ref. De] [Inst. für Hygiene und Mikrobiologie, Julius-Maximilians Univ., Würzburg, W. Germany]

Pastries with synthetic cream from 43 bakeries were examined within 2 h of purchase. Total bacterial counts on plate count agar were 10^5 - 10^7 /g of cream, coliform count on violet red bile agar was 10^3 - 10^5 /g of cream. Chocolate creams were heavily infected. The values exceed the permitted levels for comparable food groups. RM

8 N 335

Non-dairy sour cream improves flavour, texture of baked, frozen foods.

Anon.

Food Processing 30 (3) 35 (1969) [En] [Putman Publishing Building, 111 E. Delaware Place, Chicago, Illinois 60611, USA]

Hy-Derv, a non-dairy cultured product, has the physical characteristics of sour cream but not its variability. The liquid base material is compounded from UV treated vegetable fats, corn syrups and proteins and is pasteurized before the culture starter is added. 5 gal containers are UV treated, filled and held for 6-9 h at 65-75°F. Hy-Derv improves the quality of baked potato filling, cheese cakes, frozen pound cakes, butter cakes, muffins, doughnuts and chocolate products. SW

8 P 716

Imitation products and the future of the dairy industry. [A symposium]

United States of America, American Dairy Science Association

Journal of Dairy Science 52 (5) 748-60 (1969) [1 ref. En]

The following papers were read at this symposium presented at the 63rd Annual Meeting in June 1968: 'Imitation dairy products - federal laws and regulations', by W. R. Moses (pp. 748-51); 'Economics of imitation milk products', by R. E. Jacobson (pp. 751-55, 1 ref.); and 'Role of imitation milk in the feeding of tomorrow's population', by F. V. Kosikowski (pp. 756-60, 7 ref.). CDA

8 P 751
Nutritional value of milk compared with filled and imitation milks.
Brink, M. F.; Balsley, M.; Speckman, E. W.
American Journal of Clinical Nutrition 22 (2) 168-80 (1969) [50 ref. En] [Division of Nutrition Res., National Dairy Council, Chicago, Illinois, USA]

4 types of filled milk, 1 of imitation milk and 1 of whole milk were analysed for total fat, saturated and unsaturated fatty acids, SNF, ash, vitamins and carbohydrate content. Filled and imitation milks contained more saturated fatty acids and less essential fatty acids than whole milk. The nutritional value of imitation and filled milk is compared with that of whole milk. [See also Am. Dairy Rev. (1968) 30 (4) 32, 33 & 102-04.] SPT

8 P 761
Choosing a fat system for a filled or imitation dairy cheese.
Ryberg, J. R.
Food Product Development 2 (4) 60, 62, 64 & 66 (1968) [1 ref. En] [Durkee Industrial Foods Group, Division SCM Corp., Chicago, Illinois, USA]

In this article, which is adapted from a paper presented at the 5th Annual Marschall Invitational Italian Cheese Seminar at Madison, Wisconsin in April 1968, the author discusses the following: current trends in industry in connection with vegetable substitutes for cheese products; the influence of price of milk and milk fat, of technical improvements in products, and of availability of suitable vegetable fat systems on acceptance of in preference to traditional dairy products; and suitability of vegetable fats for cheese manufacture by direct acidification and culture methods. CDA

10 G 392
The soy proteins in foods.
Anon.
Soybean Digest 29 (6, Blue book) 24-31 (1969) [7 ref. En]
Important soy protein foods and their principal uses described are: soy flour (full fat, low fat and defatted) flakes and grits, soy protein concentrates, isolated soy protein, textured protein (made by extrusion type processing of soy flour or from whole dehulled beans), spun protein (by spinning isolated soy protein into fibres), hydrolysed vegetable protein, soy milk, high protein soft drinks, blended food products CSM (corn-soy-milk mix) and WSB (wheat-soy blend). Special protein foods are developed for overseas markets. The new textured and spun proteins are used for simulated meats resembling chicken. A chart of the new protein food programme of the Agency for International Development lists 11 new products. RM

10 G 394
Sour cream whip.
Noznick, P. P.; Tatter, C. W. (Beatrice Foods Co.)
United States Patent 3 443 960 (1969) [En]
A whippable, acid-flavoured imitation cultured cream is prepared by mixing vegetable fat, caseinate or soya protein, a calcium source, water and a buffer, heating the mix to 145°F, pasteurizing, homogenizing and cooling the product and culturing with a sour cream organism (e.g. Streptococcus lactis and/or Str. cremoris, Str. lactis, Lactobacillus casei). The whipping agent (polyhydric alcohol partial ester of higher fatty acid) may be added before or after culturing. The final product may be spray dried. HBr

4

10 G 402
Substitutes for whole milk.
Council on Foods and Nutrition
Journal of the American Medical Association 208 (9) 1686-87 (1969) [3 ref. En] [Dept. of Foods and Nutrition, American Medical Association, 535 N. Dearborn St., Chicago, Illinois 60610, USA]
This article defines 2 types of milk substitute: (i) filled milks and (ii) imitation milks. (i) is a combination of skim milk and a vegetable oil (coconut or partially hydrolysed soybean or corn oil). (ii) contains no dairy products, and its composition is variable. Often it contains only 1% protein which may be soybean protein or sodium caseinate. Proposed legislation for the control of (ii) is mentioned. Some advantages of the use of (i) and (ii) are discussed and the need is stressed for adequate labelling so that the nutritional value of a product may be ascertained. MEG

10 P 1034
[Studies on lipids of milk and dairy products by gas chromatography. III. Calculation of ratio of coconut oil to milk fat.]
Date, Y.
Japanese Journal of Dairy Science 18 (2) A55-A60 (1969) [12 ref. Ja, en] [Miyagi Inst. of Public Health, Sendai, Japan]
The ratio of lauric acid to capric acid in milk fat was ~1.1-1.2 and in coconut oil ~7.7. From this basis an equation is proposed for calculation of the % coconut oil in mixtures of the oil and milk fat from the ratio of the acids in the mixture. The mixtures are relatively rich in lauric acid and volatile fatty acids. [From En summ.] [See also Jap. J. Dairy Sci. (1966) 15 (5) A107 & (1967) 16 (2) A79 for parts I & II.] SJR

11 N 456
[The composition of commercial nut oil and nut cream on the market.]
Canuti, A.; Coppiardi, G.
Industria Alimentare 7 (12) 77-80 (1968) [7 ref. It] [Lab. Chimico Provinciale, Cremona, Italy]
Research has been made into the use of the cheaper olive oils instead of nut oil in certain nut creams. By the classical methods nut oil and olive oil can hardly be distinguished, but by means of gas-chromatography and the UV spectrum falsifications can be demonstrated clearly. GHGP

11 N 464
Detection of a synthetic milk fat.
Parodi, P. W.
Australian Journal of Dairy Technology 24 (2) 56-59 (1969) [10 ref. En] [Butter Marketing Board, Brisbane, Australia]

A sample of commercial 'pure milk fat' was analysed to determine its authenticity. Saponification value, refractive index, I value, and Reichert-Meissl, Polenske and Kirschner values, determined by methods laid down in British Standard BS 769, were all within the range for natural milk fat. Gas-liquid chromatographic analysis showed the presence of campesterol, stigmasterol and β -sitosterol in the sterol fraction, which were indicative of vegetable oil; butyric acid was present, but caproic acid content was lower and lauric acid higher than expected for milk fat. The fat was shown to be a mixture of beef fat, coconut oil and either tributyrin or butyric acid, with subsequent interesterification. [See also Aust. J. Dairy Technol. (1967) 22 (4) 209-12.] CDA

Chemical preservatives to inhibit the growth of *Staphylococcus aureus* in synthetic cream pies acidified to pH 4.5 to 5.0.

Schmidt, E. W., Jr.; Gould, W. A.; Weiser, H. H. Food Technology (Champaign) 23 (9) 1197-99 (1969) [14 ref. En] [Dept. of Horticulture & Forestry, St. Univ., 1827 Niel Avenue, Columbus, Ohio 4321, USA]

A method for inhibiting the growth of *Staphylococcus aureus* experimentally inoculated into synthetic cream (eggless-milkless) pies and held at room temp. is described. 2 preservatives, potassium sorbate and sodium benzoate, were incorporated into the cream filling, into the baked pie shell, and sprayed over the surface of the baked pie shell. The experimentally inoculated fillings were filled into baked shells and examined at 24-h intervals for bacteriological growth. Both preservatives and all methods of incorporation brought about effective control of the staphylococcal organisms. The simplest, and yet effective method for inhibiting staphylococcal growth would be the incorporation of either preservative into the cream filling. IFT

12 D 716

Food additives. Sodium stearoyl-2-lactylate.

Anon.

Federal Register 34 (162, Aug. 23) 13592 (1969)

[En]

The previous regulation under the US Federal Food, Drug and Cosmetic Act is revised to provide for the use of the title compound as an emulsifier in liquid and solid edible vegetable fat-water emulsions intended as a substitute for milk or cream in beverage coffee. CAS

12 H 1223

Prelightened coffee composition

Block, H. W.; Henshall, N. (General Foods Corp.)

United States Patent 3 458 319 (1969) [En]

Powdered prelighened instant coffee compositions comprise soluble coffee admixed with a non-dairy lightener (cream substitute). IFT

12 J 1058

Soya bean milk deodorization.

Fujita, K.; Sato, E.; Moroe, T. (Takasago Perfumery Co. Ltd.)

United States Patent 3 460 950 (1969) [En]

Soya bean and peanut milks are deodorized by incubation with conidiospores of an *Aspergillus* organism at 25-45°C for ~2 h, after which the conidiospores are killed by heating. IFT

12 J 1059

Soya bean milk deodorization.

Fujita, K.; Sato, E.; Moroe, T. (Takasago Perfumery Co. Ltd.)

Canadian Patent 818 403 (1969) [En]

See preceding abstr.

12 J 1060

Soya bean milk deodorization.

Fujita, K.; Sato, E.; Moroe, T. (Takasago Perfumery Co. Ltd.)

Canadian Patent 819 072 (1969) [En]

Soya beans are soaked in water overnight, ground, homogenized at pH ~6.0, mixed with koji of an *Aspergillus* organism, incubated at 35-45°C for a few h, heat sterilized, and then further homogenized to yield a deodorized synthetic milk. IFT

12 J 1061

[Soya bean product.]

Mochizuki, T.; Takahashi, K.; Shimada, H.

Japanese Patent 14 722/69 (1969) [Ja]

Soya bean milk is mixed with yeast to form a fermentable saccharide, which is deodorized, sterilized and fermented. IFT

12 J 1122

Effect of processing conditions on the composition of soy milk.

Wilkins, W. F.; Hackler, L. R.

Cereal Chemistry 46 (4) 391-97 (1969) [6 ref. En]

[St. Agric. Expt. Sta., Dept. of Food Sci. and Technology, Cornell Univ., Geneva, New York 14456, USA]

Soy milk was prepared from whole and dehulled soybeans, both soaked and unsoaked, by a water extraction process at temp. from 25 to 100°C. Soak treatments were of 1, 3, and 5 h duration at 25 to 60°C. The major effect of soaking on composition was to reduce carbohydrate and increase lipid content with increasing soak temp. Protein was relatively unaffected. The longer soaks at higher temp. reduced solids yield, especially with whole beans. Extraction of unsoaked beans reached a max. solids yield when 60°C water was used as the extractant. AS

12 L 675

Dry cream replacement for candy making.

Cardinet, G. H., Jr.; Robe, K.

Food Processing 30 (9) 54-55 (1969) [En] [Cardinet

Candy Co., Concord, California, USA]

Supply and handling difficulties of fresh cream in a confection "Baffle Bar" have been overcome by the use of a spray dried, stabilized vegetable oil product containing 50% oil which is rehydrated in water at 140°F before use. Subsequent manufacture of the confection is outlined. PEG

12 P 1309

Imitation milk and substitute milk products.

Anon.

Monthly Bulletin of Agricultural Economics and Statistics 18 (9) 13-14 (1969) [5 ref. En]

Developments in production and sales of 'synthetic' milk, filled milk, mellorine, non-dairy whipped topping and non-dairy coffee whiteners in the USA, Canada, Australia, the Philippines and some European countries are briefly reviewed. NdeV

01 G 2

Artificial milk.

Schnell, S.; Yishai, R.

Israeli Patent 24 161 (1969) [En]

An artificial milk is constituted from a mixture of 40% by wt. water, 16% sorbitol, 32% coconut oil, 2.8% cocoa butter, 1.6% vegetable shortening, 4% sugar and 5.6% agar-agar, albumin and flavouring. The water, sorbitol, coconut oil, cocoa butter and vegetable shortening are heated gently to liquification, sugar is added and mixed in thoroughly, the agar-agar, albumin and flavouring are then added, and the entire mixture is homogenized. W&Co

2 J 211

[Vegetable butters.]

Vanossi, L.

Industrie Alimentari 8 (8) 80-82 (1969) [It, en]

An outline of botanical sources, methods of preparation employed in some developing countries, main physical and chemical constants, and nutritive values of the following vegetable butters: Galam, Illipe, Yallah, Ghee, Cocoa, Dika, Cay Cay, and Irvingia. CEB

3 G 114

Development of flavoured soymilks and soy/coconut milks for the Philippine market.

Steinkraus, K. H.; David, L. T.; Ramos, L. J.;

Banzon, J.

Philippine Agriculturist 52 (5) 268-76 (1968) [12 ref. En] [Philippine Packing Corp., Cagayan de Oro, Mindanao, Philippines]

Results of flavour studies on soymilks or soy/coconut milks using taste panels are reported. Soybeans were washed, soaked for 4-6 h in water or dil. alkali, ground, filtered, flavourings added, filled into bottles and sterilized at 250°F for 12 min. Taste trials with school children and lab. personnel resulted in addition of 9% sucrose, 0.1% vanilla or 5% chocolate. Coconut milks were combined with soymilks in proportions of 1:20, 1:10 or 1:5, and homogenized at 6000 lb/in² to prevent separation of a cream layer. Bottled soymilks sold at too high a price for schoolchildren, but introduction of 60 ml soymilk into a narrow plastic bag followed by freezing, proved very popular. No significant flavour difference was found between soybean varieties using a hot (170°F) grind, which was slightly preferred to the cold (90°F) water grind. Increased aeration during beating was unpopular.

Addition of 0.15% NaHCO₃ was preferred. The process producing the most acceptable low-cost soy/coconut milk, ready for commercial production, is given. PEG

4 J 373

The use of oilseeds and nuts in the feeding of infants and pre-school children in the developing countries.

Swaminathan, M.

Plant Foods for Human Nutrition 1 (4) 205-35 (1969) [Numerous ref. En] [Central Food Technological Res. Inst., Mysore, India]

Work relating to the development of milk substitutes and processed protein foods based on oilseeds and nuts and suitable for feeding infants and pre-school children and also for the treatment and prevention of protein malnutrition is reviewed. Soyabeans and peanuts are the most promising for the production of milk substitutes and infant foods. Soyabeans contain proteins of high nutritive value (PER 2.0) which can be increased by fortification with methionine. High protein foods containing 40% protein fortified with vitamins and minerals and protein-enriched cereal foods containing 16-26% protein fortified with vitamins and minerals based on oilseed meals have been found effective in diet studies. Costs of these products are less than those of other animal foods. PEG

4 P 500

Microbiology of imitation and filled dairy products and their components. [A research note] Smutz, C. A.; Foltz, V. D.; Mickelsen, R. Journal of Milk and Food Technology 32 (11) 446-47 (1969) [13 ref. En]

84 samples of imitation and filled milk products were purchased in retail markets, comprising frozen, liquid, and powdered coffee whiteners, whipped toppings, cereal toppings, imitation whipping cream, puddings, desserts and frosting. 31 samples of individual components were also obtained from manufacturers. Samples were examined for total colony plate count (Difco plate count agar with incubation at 37° instead of 32°C), and for counts of coliform organisms, staphylococci and salmonellae. Bacteriological quality was good. All samples were free from staphylococci and salmonellae. Only 4 samples contained coliform organisms in 1 g., in each case *Aerobacter* spp. Plate count/g ranges were: whiteners, toppings <10-800; desserts, puddings <10-1800; components <10-5000. All fat and oil components gave counts <10/g. ELC

4 P 520

Symposium: dairy foods and imitations in nutrition and markets.

United States of America, American Dairy Science Association

Journal of Dairy Science 53 (1) 98-110 (1970) [En]

The following papers were read at this symposium, presented at the 64th Annual Meeting of the Amer. Dairy Sci. Ass. in June 1969: 'Nutrition and health considerations', by J. L. Breeling (pp. 99-02, 4 ref.); 'Industrial view of imitation milk products', by D. M. Graham (pp. 103-05); and 'Dairy foods and imitations: legal aspects, standards, and definitions', by C. M. Fistere (pp. 106-10). BEPC

5 D 357

Food and Drug Administration attitudes on imitations.

Weik, R. W.

Journal of Milk and Food Technology 32 (11) 448-52 (1969) [En] [Division of Food Chem. and Technology, Food and Drug Administration, Washington, DC 20204, USA]

Products simulating milk or cream and made basically from water, vegetable oil and dried skim-milk are 'filled milk products' under the US Filled Milk Act; those containing no dairy ingredient are outside the Act and must be labelled 'imitation milk'. Sodium caseinate is not considered to be a dairy product and must be described as 'sodium caseinate, milk derivative' in a statement of ingredients. Examples of other labelling requirements are (i) statement of product as e.g. 'Below Standard in Quality', 'Low in protein', where the level of ingredients is not nutritionally equivalent to the dairy counterpart, (ii) margarine with half fat content for dietary purposes must be sold as 'imitation margarine' because of the specific standard for margarine, (iii) addition of vegetable fat to cheese renders it a 'filled cheese' and must be labelled additionally as 'Imitation-x-Cheese' if it purports to resemble a specific variety, (iv) optional ingredients added to products having a mandatory standard e.g. Cottage cheese, cream cheese, must be declared e.g. 'Vegetable gum added' or 'with chives', (v) 'sour cream' made with acidification by lactic acid bacteria is subject to the standard for cream but with added ingredients must be described as 'sour cream dressing' and (vi) acidified products made by addition of food acids with artificial flavours etc. must be described, as such e.g. 'acidified sour cream product'. Some individual states enforce use of the word 'imitation' on the labels of all substitute products. For new proposed standards of quality and identity see Fedl Register (1969) 34 (194 Oct.9) 15657-58. ELC

Milk substitutes made from whey for candy provide savings in ingredient, processing cost.

Rash, K.

Candy Industry and Confectioners' Journal 133 (11) 32 & 34 (1969) [En].

Examples are given of the use of a range of demineralized whey compositions and sodium caseinate as partial or total replacements for SNF in a variety of confections. Formulations and processing methods are given for fudge, fondant, frappe and caramel, made with recombined sweetened filled milk substitute containing whey and sodium caseinate. Formulations for the sweetened filled milk are also given. BFMIRA

51P 556

Consumer evaluation of low-fat and imitation milks.

Gregory, M. E.; Hansen, A.

Southern Dairy Products Journal 85 (4) 12, 14 & 16 (1969) [7 ref. En] [Food Sci. Dept., St. Univ., Raleigh, North Carolina, USA]

Using a complete randomized block design, the following beverages were evaluated by students of North Carolina State University who each indicated highest, mean and lowest rated samples (3): (i) 3.25% fat homogenized milk, (ii) 3.25% modified vegetable-fat filled milk, (iii) 3.25% vegetable-fat non-dairy milk, (iv) low-fat (2%) milk (10% SNF), and (v) 3.25% polyunsaturated vegetable-fat filled milk. Skim-milk was used to make all but (iii). Products (i) and (iv) which were equally acceptable, ranked higher than the other beverages. MPH

5 P 629

Filled/imitation milk.

Hetrick, J. H.

Dairy and Ice Cream Field 152 (1) 42, 47, 48, 50, 52, 54, 56 & 58 (1969) [En] [Univ. Urbana, Illinois 61801, USA]

A consumer study on filled milk, marketed as 'imitation milk', was carried out in 1968 and 1969 in the Urbana-Champaign and Decatur, Illinois markets. Of an initial 100 households interviewed, 71% were aware of the product, 32% had tried it but only 8% were purchasing filled milk and only 18% could accurately describe the difference between filled and normal milk. Purchasers of filled milk were interviewed at the point of sale; 30% had been buying it since its introduction 6 months previously and per capita consumption was $\sim \frac{1}{2}$ gal/wk. At least part of the sales appeared to be additional milk sales, 14% consuming more total milk products, including filled milk, than previously; 83%, however, indicated there was no change in the total amount purchased and 3% bought less, while 77, 68, 35 and 29% indicated that filled milk purchases replaced or partially replaced whole milk, 2% milk, skim-milk and dried skim-milk, respectively. In families buying filled milk, 65% of members drank it regularly, particularly children and teenagers, 23% occasionally and 11% never, while corresponding values for fluid milk or skim-milk consumption were 27, 22 and 45%. Of 56 families regularly buying filled milk in June 1968, 73% were still buying it 7 months later, 30% buying only filled milk. Lower cost was given as the main reason for its purchase, although flavour and nutritional properties were also considered important. MPH

5 P 655

[Analysis of a fat from 'synthetic butter']

Kuzdzal-Savoil, S.; Kuzdzal, W.

Technique Laitiere 1967 (647) 19-24 (1969) [6 ref. Fr] [Sta. Centrale de Recherches Laitiere, CNRZ, Jouy-en-Josas, France]

The fat in a sample of synthetic butter was analysed by (i) the authors' Ba salts method for volatile fatty acids [see Lait (1968) 48 (475/476) 255-60], (ii) gas-liquid chromatography of methyl esters of the fatty acids, (iii) the method of IDF Standard 32 for examination of sterols and (iv) thin-layer chromatography of the monoglycerides. From the results presented and comparisons with normal butters and other fats, the authors suggest that the synthetic butter had a basis of beef tallow with tributyrin, coconut oil, and possibly trimyristin and tricaprins, added. The presence of little lard or oleic acid was not excluded. SJR

5 P 656

Filled and synthetic milk - dead or alive?

Johnson, S.

Hoard's Dairyman 115 (1) 13 & 43 (1970) [En] [Univ., Storrs, Connecticut, USA]

Monthly sales indices (MSI) for filled milk expressed in % of class I whole milk sales are presented for the period Jan. 1968-Oct. 1969 for the following markets: (i) New York state exclusive of Rochester and Buffalo, (ii) Rochester NY, (iii) Buffalo NY, (iv) California, (v) Oklahoma Metropolitan and (vi) central Arizona. Max. MSI were: (i) 0.1; (ii) 0.8 (in 1968); (iii) 1.2 (in 1968); (iv) 1.6 (Nov. 1968-May 1969); (v) 2.8 (in 1969); and (vi) 11.5 (in Aug. 1968). In (vi) the MSI fell gradually from 10.4 in Jan. 1969 to 3.9 in Oct. of the same yr, which decrease was attributed to a publicity campaign carried out by the American Dairy Association. Suggested measures designed to combat the competitive threat of filled and artificial milks are listed. NdeV

6 G 246

[Bean curd product.]

Tayio Food KK

Japanese Patent 30 577/69 (1969) [Ja]

Heated soya bean milk is mixed with an enzyme-treated egg composition, and the mixture is solidified by the use of a coagulating agent. IFT

6 G 263

'Flavour' major reason for success of frozen retail coffee whiteners.

Cook, G. G.; Martin, S.

Quick Frozen Foods 31 (11) 29-30 & 150 (1969) [En]

A consumer study of 1000 families in New York showed flavour to be the major reason why 73.3% of those who use coffee whiteners do so. It had been expected that lower price or longer refrigerated life would be the primary reason for the success and acceptance of coffee whiteners over dairy products. 88.4% employed it a coffee whitener but 26% who used it on cereal seemed to confirm the fact that the flavour was popular. 7% used coffee whitener for baking and cooking. 4.3% diluted coffee whitener for use as a beverage. VJG

6 G 264

Imitation dairy products - present and future. [A lecture]

Corash, P.

Quarterly Bulletin of the Association of Food and Drug Officials of the United States 33 (1) 59-65 (1969) [En]

Filled milk and non-dairy products beverages are considered and the significant nutritional differences which exist between them are pointed out. VJG

6 H 682

Prelightened coffee.

Block, H. W.; Henshall, N. (General Foods Corp.)
Canadian Patent 832 393 (1970) [En]

Mixtures of non-dairy liquid coffee lighteners and coffee percolate are spray-dried, conditioned, agglomerated and tempered. IFT

6 P 776

Filled milk product.

Bundus, R. H. (Beatrice Foods Co.)

United States Patent 3 488 198 (1970) [En]

A filled milk product with a rich mouth taste is prepared by employing a water-in-oil emulsifier together with vegetable fat and skim-milk. IFT

7 J 711

[Soya bean milk product.]

Watanabe Seika Co. Ltd.

Japanese Patent 94/70 (1970) [Ja]

Process is described for the conversion of defatted soya bean flour to a milk substitute. IFT

7 J 712

[Soya bean milk taste improvement.]

Mitsuru, H.

Japanese Patent 95/70 (1970) [Ja]

Soya bean milk of improved flavour is derived from raw soya beans which have been heated without denaturing the protein and then crushed to permit separation and removal of exodermis. IFT

7 M 653

[Hygienic and epidemiological problems of bakery products containing synthetic cream.] Hygienisch-epidemiologische Probleme krenhaltiger Backwaren.

Achtzehn, M. K.; Bender, U.; Plage, E.

Bäcker und Konditor 18 (2) 35-37 (1970) [10 ref. De]

The authors describe 2 epidemics of food poisoning attributable to salmonellae in synthetic cream-containing bakery products. Measures designed to reduce the danger of food poisoning from this source are outlined. IN

8 G 300

The challenge of synthetic and substitute foods. [A symposium]

Anon.

Lebensmittel-Wissenschaft und Technologie 3 (2) II-V (1970) [En]

Abstracts are presented of some of the papers read at the symposium held at the Gottlieb Duttweiler Inst., Rüschlikon-Zurich, Switzerland on Feb. 5th & 6th, 1970. Titles are Nature and significance of synthetic and substitute foods in sophisticated societies and developing countries, by N. S. Scrimshaw; Impact of synthetic and substitute foods upon political, economic and social structures, by H. F. Breimyer; Synthetic and substitute foods - safety and nutritive value, by A. E. Bender; Aqua agriculture as a source of human food, by C. J. Soeder; Leaf protein as a source of human food, by A. A. Woodham; New types of high protein foods from vegetable sources, by F. E. Horan; Consumer organization and protection: current status and future outlook, by D. I. Richardson; Changes in tastes and preferences: free consumer choice versus persuasive marketing tactics, by L. Polopolus; Foods in space, by P. C. Rambaut; Informational, labelling, and advertising standards, by O. Agren; Fluid milk substitutes - current status and expected trends, by D. L. Call & H. E. Babcock. JA

8

10 A 323

VIIIth International Congress of Nutrition.

Abstracts of Papers. [Conference proceedings]

Masek, J. (Chairman)

75-120 (1969) [En, De, Fr & Ru]

[See preceding abstr.] Determination of amino acids by liquid chromatography and by microbiological assays, by M. Burger (B49, En); Intensive beef production, by F. Buysse (B49-50, En); Tyramine determination in Italian cheese by gas liquid chromatography, thin layer chromatography and UV spectrophotometry, by E. Carnovale, A. Di Domenico, A. Fratoni & C. Lintas (C4-5, En); Effect of technology and cooking on pasta products unenriched and enriched with L-lysine, L-threonine and DL-methionine, by E. Carnovale, G. Fabriani, A. Fratoni & G. B. Quaglia (C5, En); Nutritional value of Lac-Tone vegetable toned milk, by M. R. Chandrasekhara, K. Indira, B. R. Ramanna, K. S. Jagannath & N. Leela (C13, En); Utilization of fish protein concentrate and sunflower meal as a base for low-cost high-protein foods, by C. O. Chichester, F. Monckeberg, D. Owen & I. Planella (C18, En); Essential amino acid contents of locally consumed vegetables, M. I. D. Chughtai (C20-21, En); Variation of the biological value of proteins in pasta products induced by various processing methods, by R. Cubadda, G. Fabriani & P. Resmini (C39, En); Influence of glyceride emulsifiers and starch damage factors on rheological properties of wheat flour, by J. Momirovic Culjat (C40, En); [Determination of glucose, fructose and sucrose in different fruits], D. Y. Dako, K. Trautner & J. C. Somogyi (D1, De); [Pressure cooking for institutionalized feeding], by V. Danailova, I. Stoyanov & I. Yurukov (D2, Ru); [Continued in following abstr.] VJG

10 E 449

Special weigh-mix installation for dried milk products.

Anon.

Dairy Industries 34 (8) 506 (1969) [En]

An installation for the combined weighing and pre-mixing of dried milk products is operating at the Milk Marketing Board Crudgington Creamery. It comprises a remote-controlled universal mixer seated on an Avery 3200 lb-capacity heavy platform scale, which indicates all weights up to 1120 lb with an accuracy of ± 1 lb. The universal mixer consists of a mixer drum enclosed in heating jackets and equipped with an automatically-actuated lid and variable-speed paddle. The scale platform is mounted on a weigh-lever system connected to a dial indicator, graduated in 2 lb minor divisions, at the operator's station. Filling and mixing are controlled from a console; the specified mix is obtained by pumping the ingredients separately into the drum, after which the lid is closed and the mixing cycle started. Products processed by this method include casein, butter powder, dried buttermilk and fat-filled dried milk. MPH

10 G 353

Reduce fat at least 1/3 in coffee whiteners; emulsifier-stabilizer also improves flavour.

Hlavacek, R. G.; Robe, K.; Stinson, W. S.;

Belshaw, F. (Editors)

Food Processing 31 (5) 18 (1970) [En] [Food Processing, Putman Publishing Co., 111 East Delaware Place, Chicago, Illinois 60611, USA]

On using sodium stearoyl-2-lactylate, a food emulsifier recently approved by USA authorities, the fat content of non-dairy coffee whiteners could be reduced by $> \frac{1}{3}$. Their freeze-thaw performance was also enhanced and their flavour improved. The base mix containing the additive (formulation not given) is dispersed in water under agitation and corn syrup solids and lecithinated fats are added. The mixture is held to 30 min at 165°F for complete rehydration of proteins and for pasteurization, and then homogenized at ~ 2500 lb pressure. The cooled mixture is packaged in either 1-oz tetrahedral creamers or quart milk-type containers. IF

[Method for the manufacture of hardened butter substitute and a hard butter-containing couverture.] Verfahren zur Herstellung von Hartbutter und einer dieselbe enthaltenden Schokoladenüberzugsmasse.

Kidger, D. P. (National Bisquit Co.)

West German Patent Application 1 492 939 (1969)

[De]

The hardened butter substitute is made by transesterifying a homogeneous mixture of 10-15% completely hydrogenated fat (prepared from an oil which contains a large amount of oleic acid, some palmitic acid, but no lauric acid, and which is an animal, vegetable or fish oil) and 90-50% of an oil containing lauric acid, which is a semi-hydrogenated palm kernel oil, coconut oil or babassu oil. W&Co

10 P 1365

[The 3rd stage in the development of diets for the pre-ruminal calf: milk without milk.]

Khammouma, M.; Arbogast, F.

Revue de Medecine Veterinaire 33 (6) 593-609

(1970) [Fr, en, de, es] [Quai du Canal, 52-

Joinville, France]

A milk-substitute diet is suggested for rearing pre-ruminant calves. The composition is not described in detail, but it consists essentially of protein and fat of animal (other than milk) or vegetable origin with lactose and a mineral/vitamin mix added. In 2 feeding trials, the diet gave satisfactory wt. gains and was well tolerated by the calves. Use of such a diet increases the amount of milk available for human consumption and has other economic advantages which are discussed. MEG

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See also back page

1 D 7

[USA market for edible casein and caseinates.] Le marché des caseines et caseinates alimentaires aux Etats-Unis. [A book]

France, Centre National du Commerce Extérieur 121 pp. (1970) [Fr] Paris, France: Author. Price 100 francs

This report examines in detail the market for edible sodium caseinate in the USA with reference to imports, outlets, manufacturing and the characteristics of the market. Consumption of sodium caseinate in the USA has risen from ~12 000 tons in 1967, to ~17 000 tons in 1968, and ~30 000 tons in 1969. About 8% of this was imported in 1969, mainly from Canada. The principal products manufactured are coffee-whiteners (22.7% of market), whipped toppings (13.9% of market) and instant breakfasts (13.9% of market). The report concludes that the demand for sodium caseinate will continue to rise to a predicted annual total of 55 000 tons in 1974, that French supplies could profitably start to penetrate the US market and lists major importing firms and their specifications in 20 appendices. SAC

1 D 54

1969 saw 9.3% gain, adding \$651 million value to frozen foods, bringing total to \$7.6 billion.

Martin, S.

Quick Frozen Foods 33 (5) 90-95 (1970) [En]

US poundage and sales value (\$) for 1969 (in millions) were respectively: prepared foods, 3611 and 2146; seafoods, 1197 and 1326; poultry, 2576 and 1270; vegetables, 3844 and 1056; meat, 952 and 885; juices and drinks, 1655 and 692; fruits, 781 and 263, giving totals of 14 618 and 7641 (an increase of 4% and 9.3% respectively over the 1968 figures). The most dramatic increases were in vegetable creams, puddings and precooked poultry. Detailed consideration is given to each of the above categories. VJG

1 G 17

Considerations in formulating and producing vegetable fat based dairy substitutes.

Rusch, D. T.

Food Technology 25 (5) 486, 488 & 490 (1971) [4 ref. En] [Chem. Div., Atlas Chem. Ind. Inc., Wilmington, Delaware 19899, USA]

Synthetic dairy products ('milk', chocolate drink, 'cream' and cultured 'cream') of both the filled and imitation types are described, and the use of conventional dairy processing equipment for their preparation is discussed briefly. Legal aspects of the sale of these products are also considered. MEG

1 G 36

Use of sodium stearoyl-2-lactylate to improve the lipo-protein membrane in non-dairy coffee creamers.

Leo, A.; Betscher, J. J.

Food Product Development 4 (4) 70, 72, 75 & 78 (1971) [2 ref. En] [Patco Products Co., Kansas City, Missouri, USA]

Cream is added to coffee to reduce its acidity and to smooth out the flavour of the coffee oils.

Dairy cream is a natural buffering system, but the butyrate and caprylate esters in butterfat always 'intrude' on coffee flavour, whereas non-dairy creamers leave the flavour unchanged. Fat is the main ingredient in non-dairy creamers, both as regards cost and on a % basis. This fat must be maintained in a stable emulsion. Sodium caseinate is the protein generally used, as it has a bland flavour. Sodium stearoyl-2-lactylate functions both as a surfactant and a complexing agent. The optimum usage level seems to be 0.2%, when it forms an emulsion stable to >20 freeze/thaw cycles. It works well at low sodium caseinate levels, which allows production of a creamer with a good flavour and colour and a low cost. In powdered creamers, sodium stearoyl-2-lactylate works well as the sole surfactant, at 1% level, but a combination of 0.4% lactylate and 0.1% polysorbate 65 seems to function as well, and is cheaper. IFlaC

1 H 108

[Soya bean milk.]

Yoshihara Oil Mill Ltd.

Japanese Patent 19 579/71 (1971) [Ja]

Mixtures of raw soya bean and milk serum are heated and homogenized to yield a milk substitute having a high nutritive value. IFT

1 H 109

Soybean milk production.

Kang, C.-W.

Korean Journal of Food Science and Technology 2 (1) 121-126 (1970) [19 ref. En, ko] [FAO Int. Food Tech. Training Centre, Central Food Tech. Res. Inst., Mysore, India]

Yellow soya beans from Korea and black soya beans from India were soaked in water and the cuticles removed. Samples of each were either: (i) autoclaved at 15 lb/in² for 15 min, cooled, ground for 5 min with 500 ml water and filtered; (ii) ground for 5 min with 500 ml water, autoclaved at 15 lb/in², cooled and filtered; (iii) ground for 5 min with 500 ml water, filtered and autoclaved at 15 lb/in² for 15 min; or (iv) ground for 5 min with 500 ml water, heated at 100°C for 5 min and filtered. Each sample was then bottled, sterilized at 15 lb/in² for 15 min, and subjected to organoleptic tests. Procedure (iv) gave best results for both the black and yellow beans; milk from yellow soya beans was more acceptable because of lack of pigmentation. Addition of cows' milk, flavouring agents (such as malt extract, coffee, vanilla or fruit essences), colourings, stabilizing agents, vitamins and minerals was advantageous. It is suggested that the milk be processed into evaporated, condensed or spray-dried forms for easy handling and longer storage life. A model soya bean milk plant is illustrated. Cost of soya bean milk was found to be 29% that of pasteurized cows' milk. PG

1 H 110

Soy proteins: another rare cause of the flat intestinal lesion.

Ament, M. E.; Rubin, C. E.

Journal of Clinical Investigation 50 (6) 2a (19/1)
[En]

Changing the diet of a 6 wk old infant to soy milk resulted in the development within 24 h of fever, leucocytosis, cyanosis, vomiting, diarrhoea, dehydration and metabolic acidosis. The symptoms disappeared after discontinuing the soy milk. A single feed of soy milk at 6 months produced acute inflammation and flattening of the proximal jejunum (polymorphonuclear leucocytic infiltration and loss of villi). Lactase deficiency developed transiently. Similar systemic and intestinal responses occurred 4 months later when a single feed of soy protein isolate was given. Clinical recovery was complete in 24 h and the jejunal villi regenerated within 4 days. Test feedings of soy-lecithin, gluten and cows' milk had no adverse effects. MEG

1 H 161

Studies on the processing and properties of soymilk. I. Effect of preprocessing conditions on the flavour and composition of soymilks. Khaleque, A.; Bannatyne, W. R.; Wallace, G. M. **Journal of the Science of Food and Agriculture** 21 (11) 579-583 (1970) [16 ref. En] [Dept. of Food Tech., Massey Univ., Palmerston North, New Zealand]

The effect of presoaking soybeans in solutions of various chemicals on the reduction of beany flavour in soymilk was investigated. Of the chemicals used, Na_2CO_3 and NaOH had a significant effect on the reduction of beany flavour in soymilk. Na_2CO_3 soaking at 0.4M concn. for 18-24 h was significantly better than any other presoak treatment. The activity of lipoxidase as a major source of beany flavour in soymilk is questioned. Soymilk prepared from beans presoaked in carbonate contained more protein and had a higher viscosity than milks prepared from beans presoaked in water or NaOH. Beans presoaked in carbonate were easier to process than the other 2. There was no significant difference in the amino acid pattern of the proteins in the soymilks prepared by the 3 methods. AS

1 P 23

Modern dairy products. [A book]

Lampert, L. M.

418pp. (1970) [Numerous ref. En] New York, USA: Chemical Publishing Co. Inc. Price £8.00

Although it is not clear from the title pages this is a revision of an old textbook. As the preface states the general objectives of the earlier editions have been retained, namely to present reliable information in a non-technical manner on the composition, nutritive value, manufacture, chemistry and bacteriology of milk and dairy products. These objectives are achieved on the whole but the treatment of fundamental questions such as milk proteins demonstrates the divergence between the standard of the text and some of the detailed tables that are reproduced. Chapters are included on Antibiotics-Pesticides-Radioactivity, Grades and classes of milk, Flavours, as well as on Imitation milk products, and the various groups of milk products. JMD

2 G 66

Oilseed proteins. Present utilization patterns. [A review]

Wilding, M. D.

Journal of the American Oil Chemists' Society 47 (10) 398-401 (1970) [10 ref. En] [Res. & Development Center, Swift & Co., Oak Brook, Illinois, USA]

This brief review covers present utilization patterns of soy protein. Topics discussed include: advantages of soy as a protein food; types of soy protein product available; manufacture of soy protein fibres; properties of textured soy protein; and applications of soy protein products, e.g. as bacon-like product, in ground meat products, as vegetable spreads, in imitation dairy products, and in beverages. LA

2 G 77

[Protein food.]

Ogawa, H.

Japanese Patent 25 691/71 (1971) [Ja]

A cheese-like protein food is prepared by mixing mayonnaise, raw egg white, powdered cereals or starch and a higher mol. wt. phosphate to yield a mixture which is kneaded and heated at 80-90°C. IFT

2 G 87

New high in mobile storage.

Cannon, R. B.

Food Engineering 43 (10) 103 & 105 (1971) [En]

A plant handling instant, powdered non-dairy whitener (Cremora) is described; coffee whitener is collected from 3 shifts, stored in bottom-discharge transport-storage bins, and packaged in 1 shift. AB

2 H 292

Effect of the amount of water on the extraction of coconut milk at two temperature ranges.

Cancel, L. E.; Rivera-Ortiz, J. M.;

Santos-Sanchez, M.

Journal of Agriculture of the University of Puerto Rico 55 (2) 167-173 (1971) [22 ref. En, es] [Food Tech. Lab., Agric. Expt. Sta., Mayaguez Campus, Univ., Puerto Rico, USA]

Cold water (80-86°F) was added to coconut pulp at a water to pulp ratio of from 0:4 to 4:4 by wt. The results indicated a gradual increase in the % yield of coconut milk as the ratio increased. The yield was 8-10% higher at the 4:4 ratio compared with the 0:4 ratio. Identical results were obtained with hot water at 190-200°F, and fat content of the coconut milk of both extracts was similar. Detailed results of pilot plant extraction tests and chemical analysis of coconut milk and press-cake are tabulated. OA

2 L 197

Bee and honey patents of the world. [A book]

North, O. S. (Editor)

xii + 300pp. (1970) [Numerous ref. En, de, fr, pl, ja, fl] Arlington, Virginia, USA: Author. Price \$15.00

This book contains a collection of 125 US and other English-language patents, as well as some important non-English patents, on processes and

compositions relating to: beekeeping (pp. 1-40); honey processing and packing (pp. 41-140); honey beverages and beverage powders (pp. 141-184); honey butters and spreads (pp. 185-225); other honey foods (pp. 226-276); bee and honey health products and medicines (pp. 277-300). Abstracts of some of the non-English patents are given, and an inventor-assignee index is provided. AL

2 N 75

Simulated sour cream for FF processing is another vegetable oil-based success.

Anon.

Quick Frozen Foods 33 (12) 73-75 (1971) [En]

Sour cream is rarely used by the food industry because variation in taste and acidity of the sour cream make it impossible to produce a uniform product. Uses, advantages and difficulties arising from the use of sour cream are considered. King Sour, a vegetable oil-based sour cream replacement manufactured by American Whipped Products, Inc., of Mount Vernon, New York, is described. Its most important property is controlled and constant level of acidity. It is claimed to stay within pH 4.1-4.3 with a total titratable acidity 0.74-0.78% and to remain at <5000 microorganisms/g, for ≥ 2 months under refrigeration. Unlike butterfat sour cream it resists curdling or separation.

Replacement of butterfat with vegetable fat reduces the cost of the sour cream. VJG

2 N 88

[Method for preparing emulsions of edible oils.]

Unilever NV

Netherlands Patent Application 7 013 163 (1971)

[NL]

An emulsifier for oil-in-water emulsions of edible triglyceride oils consists of a protein having carboxy-acyl groups derived from C_{1-10} aliphatic dicarboxylic acids bonded to N. Preferably, 50-80% of the reactive amino groups are substituted by β -carboxy-propionyl, -butyryl or -acrylyl groups. The starting protein may be non-fractionated whey protein, casein, egg white, soy protein, blood serum protein or gelatine. The protein is treated in aqueous solution at pH 6-9 with the internal anhydride of a C_{1-10} aliphatic dicarboxylic acid. The free dicarboxylic acid and residual anhydride formed are removed by dialysis. Acylated protein is recovered from the aqueous solution by freeze-drying. Oil-in-water emulsions prepared with the acylated protein may have a pH of 4.1-9.0, can be heat-pasteurized or sterilized, and are particularly suitable for artificial cream or milk, substitutes. W&Co

2 N 102

Preparation of a margarine-like product containing soy bean.

Gupta, N. B. D.

Indian Patent 126 983 (1971) [En]

Soybean milk is intimately mixed with vanaspati. W&Co

2 T 93

Colouring foods with carotenoids.

Counsell, J. N.; Webb, G. K.

Flavour Industry 2 (9) 519-524 (1971) [8 ref. En]

[Roche Products Ltd., 15 Manchester Square, London, W1M 6AP, UK]

4 carotenoids: β -carotene, β -apo-8'-carotenal, β -apo-8'-carotenoic acid ethyl ester and canthaxanthin have been commercially synthesized on a large scale. Use of these in the following products is described: biscuits and cakes, breadcrumbs, butter, butter sauces, cake mixes, cheese, dairy substitutes, eggs, fish and fish products, ice cream, jellies, desserts, margarine, meat products, oils and fats, pasta, salad dressings, soft drinks, soups, sugar confectionery, tomato products and yoghurt. Countries generally permitting the respective carotenoid for food coloration in 1971 are listed under the individual carotenoid headings. VJG

3 N 156

Tailored fat systems regulate, change fatty acid composition of food.

Anon.

Food Processing 32 (9) 26-27 (1971) [En]

A range of tailored fat systems, containing 20-30% polyunsaturated fatty acids and 20-25% saturated fatty acids, has been formulated for use in fluid whipped toppings, frozen coffee creamers, filled milks and baked foods. Use of these systems can reduce the saturated fatty acid content of filled milk from 98 to 25% of lipid component, and increase unsaturated fatty acid content from 0 to 30%. In changing to these systems the min. necessary oxidative stability, the possibility of using better protective packaging, the blandness required in the food product, and the function required of the fat system should be considered. Costs of the systems are up to $\frac{1}{2}$ lb more than for conventional fats. PG

3 P 436

Nutritive and organoleptic characteristics of nondairy imitation milks.

Kosikowski, F. V.

Journal of Food Science 36 (7) 1021-1025 (1971)

[12 ref. En] [Dept. of Food Sci., Cornell Univ., Ithaca, New York 14850, USA]

13 nondairy imitation milk powders, concentrates and bottled beverages were analysed for general composition, nutrients and organoleptic properties. These products were obtained from 11 domestic sources, which decreased to 8 by the end of the study. Nondairy imitation milks were characterized by wide fluctuations in riboflavin (1.9-418.0 $\mu\text{g}/100\text{ ml}$), thiamine (0.2-54.7 $\mu\text{g}/100\text{ ml}$), protein 0.76-3.67% and amino acids like lysine (4.7-13.6 $\mu\text{mole}/\text{ml}$). Ca and Mg in all imitation milks were well below levels of the same elements in cows' milk reconstituted from whole milk powder, whereas Na generally was much higher, almost 3-fold in several instances. The appearance of most nondairy imitation milks closely resembled fresh, pasteurized cows' milk, but the flavour, ascertained by 3 judges, was not similar nor as acceptable to them. Several imitation milks scored in flavour as well as or

slightly better than cows' milk reconstituted from whole milk powder, but in all these instances, including the cows' milk, the flavour quality was only fair. Most imitation milks contained less protein than reconstituted cows' milk, but 2 contained concn. of 3.26 and 3.67%, comparable to cows' milk. A number of nondairy imitation milks showed very low levels of Ca, riboflavine, thiamine and essential amino acids, lysine and methionine, in relation to cows' milk. AS

4 G 180

A study of the palatability of food products made with synthetic and filled milks.

Russell, W. E.; Sanderson, M.

Canadian Institute of Food Technology Journal 4 (4) 175-178 (1971) [6 ref. En, fr] [Dept. of Consumer Studies, Univ., Guelph, Ontario, Canada]

Food products made from synthetic and filled milks were evaluated for consumer acceptability in 2 test series. In one, 2 synthetic milks containing coconut oil and maize syrup solids, one having soya protein and the other sodium caseinate, were compared with liquid whole milk for general palatability and for components of palatability. Products rated were liquid milk as a beverage, chocolate drink, white sauce, maize starch pudding, baked custard, muffins and plain cake. Whole milk was superior to both synthetic milks except in chocolate drink, muffins and cake. In chocolate drink, sodium caseinate milk was judged equal to liquid whole milk, but soya protein milk was inferior. Milk containing sodium caseinate was the preferred synthetic milk. In series 2, the preferred synthetic milk and a filled milk were compared with liquid whole milk when used in the same products. The filled milk was liquid skim-milk plus 3.5% coconut oil. Sodium caseinate milk was better than liquid whole milk for general palatability in plain cakes. Liquid whole milk was significantly better than sodium caseinate milk but not than filled milk for general palatability in muffins. In other products, liquid whole milk received the highest rating, filled milk came second and sodium caseinate milk was least acceptable.

AS

4 H 503

[Soya bean beverage.]

Asahi Chemical Industries Co. Ltd.

Japanese Patent 34 178/71 (1971) [Ja]

Soya bean milk beverage contains an amino acid derived from animal hide or blood along with a 5'-ribonucleotide to provide improved flavour and odour. IFT

4 H 592

Studies on the processing and properties of soymilk. II. Effect of processing conditions on the trypsin inhibitor activity and the digestibility in vitro of proteins in various soymilk preparations.

Wallace, G. M.; Bannatyne, W. R.; Khaleque, A.

Journal of the Science of Food and Agriculture 22 (10) 526-531 (1971) [26 ref. En] [Dept. of Food Tech., Massey Univ., Palmerston North, New Zealand]

Soymilks prepared from beans soaked in water or 0.4M Na₂CO₃ solution for 24 h were processed at 98°C or (in cans) at 115°C, and trypsin inhibition activity was measured; pH was adjusted to 6.8. Inactivation was much faster with carbonate-soaked beans at 98°C (complete in 40 min, vs. 76 min for water soaking). At 115°C, inactivation was about the same for the 2 treatments (17 min for total inactivation). The differential effect is associated with a large pH increase with the carbonate method at 98°C. When the pH of milk prepared from water-soaked beans was adjusted to 6.8-9.9 prior to processing at 98°C, time taken for complete inhibitor destruction fell progressively, to 11 min at pH 9.9 (first-order kinetics). In in vitro enzymic-hydrolysis tests, protein digestibility in soymilks by trypsin following various types of processing showed an increase with heat treatment paralleling the decrease in trypsin-inhibitor activity, digestibility tending to decrease after complete destruction of inhibitor. Providing this point was not overstepped, digestibility with carbonate treatment was ~19% higher than that with water soaking at 98°C, and ~6% higher at 115°C. Digestion by pepsin fell (by a max. of 9.4%) with increasing duration of heat treatment and did not differ significantly with type of processing. Other tests showed that casein was less susceptible to pepsin attack and more susceptible to trypsin than soymilk proteins. [See FSTA (1972) 4 1H161 for part I.] MJD

4 H 593

Studies on the processing and properties of soymilk. III. Factors affecting concentration of soymilk and its stability during heat sterilization.

Wallace, G. M.; Khaleque, A.

Journal of the Science of Food and Agriculture 22 (10) 531-535 (1971) [19 ref. En]

Soymilks prepared from beans soaked in water or Na₂CO₃ and forewarmed at 115°C for 17 min to inactivate trypsin inhibitor were tested for viscosity and solubility at different solids contents following concn. using a Buchi rotary vacuum evaporator. Viscosity increased exponentially with increase in solids for each soaking technique, and insolubility of solids became very high at levels higher than ~17-18% solids. In a test on the effect of additives on viscosity, treatment with sodium sulphite and N-ethylmaleimide prior to concn. reduced viscosity somewhat up to ~16% solids, confirming participation of sulphide-disulphide interactions in increasing viscosity up to this point. Ca concn. in prepared soymilks were small.

In further work, soymilks prepared from carbonate-soaked beans and conc. without forewarming, or with forewarming at 90°C for 5 min or at 115°C for 5 or 17 min, were tested following sterilization. Solubility of solids was retarded with forewarming for 5 min at 115°C (similar for 17 min), soft gel appearing at ~17% solids. Viscosity in non-forewarmed soymilk, which was low by comparison with soymilk forewarmed for 5 min at 115°C when tested before sterilization, was higher by comparison after sterilization. With forewarming at 90°C, sterilization reduced viscosity from an initially very high level. The beneficial effect of sodium sulphite did not persist after sterilization but that of N-ethylmaleimide did with forewarmed concentrates (50% reduction in viscosity). [See preceding abstr. for part II.]
MJD

4 J 541

[Bean curd production.]

Yoshikawa, K.

Japanese Patent 33 698/71 (1971) [Ja]

Mixtures of magnesium and tartrate ions are used in the production of a bean curd. IFT

4 J 619

[Powdered extracts.]

Fujita, M.

Japanese Patent 36 177/71 (1971) [Ja]

Vegetable juices are emulsified along with milk, milk solids or soybean milk, and spray-dried to yield powdered vegetable extracts of improved flavour. IFT

4 J 633

[Bean curd product.]

Taisho Co. Ltd.

Japanese Patent 34 732/71 (1971) [Ja]

Mixtures of a major portion of a linear or cyclic condensed phosphate with a minor proportion of phytic acid are combined with liquid or ground soybean materials. IFT

4 P 521

[Composition of whey.]

Davidov, R. B.; Faingar, B. I.

Molochnaya Promyshlennost' 32 (12) 12-14 (1971) [Ru] [Moskovskaya Sel'skokhoz. Akad. imeni K. A. Timiryazeva, USSR]

Tvorog whey (acid) and cheese whey (rennet) were analysed for general composition, minerals, vitamins and amino acids and the results are tabulated. Tvorog whey contained 3.5 × more free amino acids and 7 × more essential free amino acids than cheese whey; this was mainly due to substantially higher contents in the former of valine, phenylalanine, leucine and isoleucine, accounting for >66% of the free amino acids. The

use of whey for the feeding of pigs and poultry, after enrichment with vitamin B₁₂ by cultivation of propionic acid bacteria, and in the preparation of milk replacers is mentioned. FL

4 P 535

Variation in the fatty acid distribution of filled milk beverages.

Horvath, R. A.; Brown, W. H.; Stull, J. W.

American Journal of Clinical Nutrition 24 (4) 397-400 (1971) [11 ref. En]

8 brands of filled milk beverages (FMB) and 4 of liquid coffee whiteners were sampled at monthly intervals from retail markets in Arizona. Saturated fatty acids in the fat of FMB varied from 20 to 99%. Products with a high saturated fat content contained mainly lauric acid with smaller amounts of myristic, palmitic and stearic acids; those with a high unsaturated fat content contained oleic acid with palmitic, stearic and linoleic acids also present. For FMB, variations in total fat content (3.23-3.51%) and its fatty acid composition were observed both between brands and from month to month. One coffee whitener had a saturated : unsaturated fatty acid ratio of 20 : 80, whereas the other 3 brands contained mainly saturated fatty acids. Total fat content ranged from 7.85 to 11.55% and was more variable than in the FMB. The wide variation and lack of standardization in the type of substitute fat used in these products is discussed briefly. MEG

4 P 536

Role of filled milk in the dairy development of the Philippines.

Medora, P. S.

Indian Dairyman 23 (4) 82-85 (1971) [En] [Bureau of Animal Ind., Manila, The Philippines]

Less than 2% of the milk equivalent consumed in the Philippines is accounted for by local production, amounting to ~9400 tons cows' and buffaloes' milk annually. There are ~2000 dairy cows in the country and ≤2% of the 3.7 million Philippine carabaos (buffaloes) are milch animals, yielding 1-2 l. milk (10-12% fat) daily/head. Filled milk manufactured in the country from imported skim-milk and locally produced coconut-oil has a large share of the domestic market of products based wholly or partially on milk. In 1969, the sales vol. of filled milk was 5 500 000 cases; the most popular retail package is the 14-oz tin. The use of the term 'filled milk' is discussed with reference to the FAO Code of Principles. The introduction of toned milk into the country is recommended. NdeV

4 T 240

Flavours in novel foods.

Heath, H. B.

Food Manufacture 47 (1) 21-22 & 25 (1972) [En] [Bush Boake Allen Ltd., Wharf Road, London N1, UK]

Technical and legal problems of adding flavours to synthetic and substitute foods are discussed.

Topics covered include chemistry of meat flavours, addition of synthetic cream flavours to imitation and filled milks and imitation cream, flavouring of margarine with synthetic butter flavour, and synthetic cheese flavours. JA

5 G 250

Protein isolate is stable to pH 2.0.

Belshaw, F. (Editor)

Food Processing 32 (11) 18-19 (1971) [En]
[Putman Publishing Co., 111 E. Delaware Place,
Chicago, Illinois 60611, USA]

A soy protein isolate stable in solution at pH 2.0 has been developed for replacement of casein and egg solids which precipitate below pH 4.5. Thickening, emulsion-forming, film-forming, gelling and water-binding properties are similar to milk or egg protein. The isolate contains at least 90% protein, can be processed to 285°F, frozen to -10°F, refrigerated for up to 6 months without syneresis, texture or viscosity changes, and has been successfully formulated into fruit flavoured puddings. Other possible applications include imitation sour creams, yoghurts, sauces normally requiring egg solids, sour hard candies and acid pie fillings. The isolate is currently priced at 45 cents/lb compared with 31 cents/lb for skim-milk solids containing 36% protein, indicating a substantial reduction in protein costs by the use of the isolate. PG

5 G 251

Essential amino acid composition of the proteins of a mushroom (*Volvariella displasia*).

Bano, Z.; Srinivasan, K. S.; Singh, N. S.

Journal of Food Science and Technology (Mysore) 8 (4) 180-182 (1971) [18 ref. En] [Central Food Tech. Res. Inst., Mysore, India]

The essential amino acid composition of the mushroom was determined; its protein score was found to be 57. The protein had adequate quantities of most essential amino acids but was deficient in leucine and methionine. Mushrooms were also analysed for moisture (90.4%), fat (0.25%), protein (3.90%), crude fibre (1.67%), and ash (1.10%). AS

5 P 706

Replacement of sodium caseinate.

Ellinger, R. H.; Schwartz, M. G. (Stauffer Chemical Co.)

United States Patent 3 615 661 (1971) [En]

The preparation of dried whey - lactalbumin phosphate mixtures and their utilization in foods are covered. A preferred product is based on a mixture of dried demineralized whey with 25-35% of lactalbumin phosphate. The mixture is claimed to find particular application in the partial or total replacement of sodium caseinate in non-butterfat dairy products. Examples are given in which food composition mixtures incorporate up to 15% (by wt.) of dried whey - lactalbumin phosphate; these include coffee whiteners, whipped topping bases, frozen desserts, imitation sour cream and imitation cream cheese. EJM

5 P 707

Replacement of sodium caseinate.

Ellinger, R. H.; Schwartz, M. G. (Stauffer Chemical Co.)

United States Patent 3 615 662 (1971) [En]

This invention differs from the one covered by the preceding abstr. chiefly in as far as NaH_2PO_4 or insoluble metaphosphate are utilized in the mixture dried demineralized whey, in place of lactalbumin phosphate. EJM

5 P 708

[Studies on the feathering of cream powder. I. Main causes.]

Takahashi, T.; Kodama, M.

Japanese Journal of Dairy Science [Rakuno Kagaku no Kenkyu] 20 (3) A84-A98 (1971) [34 ref. Ja, en] [Meiji Milk Products Co., Higashi-Murayama, Tokyo, Japan]

Feathering of cream powder in coffee was influenced by both the type of instant coffee and type of cream powder used. Detailed analyses are given of 8 commercial instant coffee powders. 2% solutions of coffee powders tended to give feathering with samples in the pH range 4.80-4.89, but were free from feathering at pH 4.92-5.18. Conc. coffee powder from 1.25-2.50% were examined in conjunction with conc. cream powder from 2.8-4.2%. Feathering increased with increasing coffee concn. and tended to reduce as cream powder concn. increased. Temp. of the coffee solution was also important; at 80°C feathering commenced with susceptible powders and was evident at 95°C with nearly all powders. Detailed analyses are also given of 3 commercial cream powders; these contained 23.41-26.27% fat but varied widely in protein, lactose and ash contents, in pH of 10% solutions, and in bulk density. Measures suggested to reduce feathering are to increase the buffering activity and protein content and reduce the Ca content of cream powders. [See also following abstr.] ELC

5 P 709

[Studies on the feathering of cream powder. II. Effects of various added phosphates.]

Takahashi, T.

Japanese Journal of Dairy Science [Rakuno Kagaku no Kenkyu] 20 (4) A139-A156 (1971) [16 ref. Ja, en]

Additives of ortho and hexametaphosphates to cream powder in various proportions were tried to prevent feathering in hot coffee. With cream powder containing 7% protein, Na_2HPO_4 alone gave insufficient buffering activity to prevent feathering, but when combined with further addition of a phosphate buffer pH 7.3 feathering was eliminated and lump formation in the powder during storage was prevented. Additions of sodium hexametaphosphate tended to increase heat coagulation of milk proteins. The protection from feathering is attributed to inactivation of a large proportion of the milk Ca as insoluble $\text{Ca}_3(\text{PO}_4)_2$. [See also following abstr.] ELC

5 P 710

[Studies on the feathering phenomenon of cream powder. III. Effect of physical structure of particles.]

Takahashi, T.

Japanese Journal of Dairy Science [Rakuno Kagaku no Kenkyu] 20 (5) A168-A186 (1971) [28 ref. Ja, en]

Experimental cream powders (fat content ~30%) were produced in which the particle size was enlarged from a mean of 10 microns to 20 microns and the bulk density reduced from a range of 0.49-0.67 g/ml to 0.27-0.39 g/ml. This was achieved by addition of CO₂ to the evaporated cream before spray-drying; the wt. % CO₂ in cream powder solids was varied from 0.12-0.36. The procedure comprised incorporation of a mixture of either Na₂CO₃ or NaHCO₃ with NaH₂PO₄ in the evaporated cream. When the resulting cream powder was added directly to coffee, feathering was more pronounced than with normal control powders but if added as an aqueous solution feathering was about the same. However feathering was reduced or eliminated if a KH₂PO₄ buffer was added to the evaporated cream in addition to the Na₂CO₃/NaH₂PO₄ mixture. Reduction of the powder bulk density had the disadvantage of producing lumps when the cream powder was added to coffee, but this was reduced by holding the treated evaporated cream at 40°C for 100 min. before spray-drying. ELC

5 P 758

The use of reverse osmosis and ultrafiltration in the food industry.

Fenton-May, R. I.

Dissertation Abstracts International. Section B.

The Sciences and Engineering 32 (6) 3323-3324:

Order no. 71-25469 (1971) [En] [Univ., Madison, Wisconsin, USA]

Different types of cheese whey were concentrated up to 34% TS by reverse osmosis; economically, with present equipment, reverse osmosis can only be used to concentrate cheese whey to 20-24% TS prior to further concn. using conventional vacuum evaporators. Trans-membrane water flux increased with increasing flow rate, pressure and temp. On whey fractionation by ultrafiltration a variety of products, with protein:lactose ratios ranging from 3:5 ('skim-milk equivalent') to >2:1, can be obtained. For both reverse osmosis and ultrafiltration, increasing protein concn. decreased trans-membrane flux and increased the pressure drop through the system. With the Calgon-Havens system the economically attainable protein level was limited to ~10%. Permeate from ultrafiltration of cheese whey contains ~6% TS, mainly lactose, which can be concentrated to ~20% lactose, using reverse osmosis, prior to further conventional concentration by evaporation. Using skim-milk, trans-membrane fluxes for both reverse osmosis and ultrafiltration are lower than whey using cheese whey; ≤80% protein (dry wt.) was obtained using the Abcor system. Some experiments were also performed to concentrate fish stickwater and soya bean whey. SAC

16 D 347

ADR plant operations survey. III. Dairy and non-dairy products processed and sold.

Anon.

American Dairy Review 33 (12) 40, 44-46 (1971) [En]

In this survey (see preceding abstr.), the proportion of plants selling or manufacturing, processing and/or packaging 25 dairy and 16 non-dairy products are tabulated for 3 categories, all plants, liquid milk plants and ice cream plants. An average of 16 of these products are sold and ~9 are processed or packaged per plant. Also mentioned are coffee whiteners and a growing interest in aseptic processing. SAC

6 H 825

Soy protein-lipid films. I. Studies on the film formation phenomenon.

Wu, L. C.; Bates, R. P.

Journal of Food Science 37 (1) 36-39 (1972) [13 ref. En] [Food Sci. Dept., Univ., Gainesville, Florida 32601, USA]

The phenomenon of soy protein-lipid film (yuba) formation has been studied with soymilk and model systems of soy protein isolate (SPI), phospholipids, vegetable oil and sucrose, in attempts to define the effects of these components on heat induced protein-lipid surface film formation. Water-dispersible protein had the primary role in film formation. Of the secondary components, phospholipids were more capable of combining with SPI than were neutral lipids. Carbohydrate was least capable of incorporation and was not essential. However, all secondary components tended to help film formation on the surface of heated (85°C) aqueous dispersion of SPI, and film yield did not decrease as long as the concn. of protein was maintained within a critical range (1.5-3.0%) and secondary components were at ~0.9%. The film formation phenomenon is hypothesized as based on protein denaturation, endothermic polymerization of protein and lipid-protein interaction. IFT

6 H 826

Soy protein-lipid films. II. Optimization of film formation.

Wu, L. C.; Bates, R. P.

Journal of Food Science 37 (1) 40-44 (1972) [16 ref. En]

Optimization studies of heat-induced protein-lipid surface film formation were conducted with natural soymilks at various concn., pH and temp. Optimal conditions for film processing were: a thoroughly emulsified dispersion of protein and lipid with a soluble solids content of 4-6%; a pH range of 6.5-9.0; and a temp. of 90-100°C. Also model system studies were made with a 3.0% concn. of soy protein isolate with varied secondary components. The optimal concn. of major components were 2-3% water-dispersible protein (based on optimal soymilk concn.), 0.5-3.0% neutral lipids and ~0.1% phospholipids. The relative

importance of major components and optimal conditions for film production were assessed by measurement of film yield, rate of film formation and protein incorporation efficiency. Total soybean protein recovery in films increased from 47% under the traditional method to 65% under optimal conditions. IFT

6 H 865

Effect of changes in the formulation of soymilk on its acceptability to Filipino children.

Puertollano, C. L.; Bourne, M. C.; Banzon, J.; Melgar, J. C.

Philippine Agriculturist 54 (5/6) 227-240 (1970) [9 ref. En] [Dept. of Agric. Chem., Univ., Coll. of Agric., Llaguna, Philippines]

A large-scale acceptability study on various formulations of soymilk was performed with ~400 Filipino school children as tasters. The soymilk was made by the boiling-water grind method because it gives a product free from the characteristic "beany" flavour of soymilk. The various formulations ranged from 77.2 to 91.8% acceptability using a 7 point visual scale. Soymilk containing 7% sugar was given a significantly higher acceptability than soymilk containing 5% sugar. Sugar levels of 9% and 11% had a higher (but not significant) acceptability than 7%. 13% sugar level was rated to have significantly lower acceptability than 11% sugar level. Soymilk containing 7% sucrose plus 20 ppm vanilla essence was selected as the "standard" formula on the basis of acceptability and cost. Addition of 2% coconut oil fat to standard soymilk made almost no change in acceptability. Addition of chocolate resulted in a significant increase in acceptability. Use of 0.1% NaOH in the water used for soaking increased acceptability slightly. A mixture of 25% carabao milk and 75% soymilk was not liked as well as pure soymilk. Serving the soymilk cold gave a higher acceptability than serving the same formulation at ambient temp. A comparative taste study shows that soymilk has an acceptability approaching that of a popular cola beverage. AS

6 H 866

Thermophilic, mesophilic and psychrophilic bacterial plate count of "gata" (coconut milk) stored for 24 h at 55°C, 30°C and 10°C.

Fernandez, W. L.; Lirio, V. M.

Philippine Agriculturist 54 (5/6) 193-201 (1970) [21 ref. En] [Dept. of Plant Pathol., Univ., Coll. of Agric., Laguna, Philippines]

Since coconut meat from normal nut is free from microorganisms, the initial contaminants must be introduced during the extraction of "gata" (coconut milk). The water used in the extraction, the utensils that come in contact with the grated nut meat and "gata", the air, and the handlers are possible sources of microorganisms. The magnitude of bacterial growth depends on the temp. and the duration of storage as shown by various high plate counts. Initial plate counts, taken before storage, indicated

that mesophiles greatly outnumbered psychrophils, but no thermophiles were observed. However, after 24 h of storage at 55°C, more thermophiles were present than mesophiles, while psychrophiles were absent. With "gata" stored at 30°C and 10°C for 24 h, mesophiles greatly outnumbered psychrophiles, whereas no thermophiles were present. The majority of mesophiles were Gram-negative, short rods. Thermophiles were mostly Gram-positive, long rods. Most of the psychrophiles were Gram-positive cocci. No bacterial endospores, fungi and yeast colonies were observed. "Gata" stored at 30°C produced the lowest pH, followed by 55°C storage and then by 10°C storage. AS

6 H 867

Bihourly bacterial plate count of "gata" (coconut milk) stored for 24 h at 30°C, 20°C and 10°C.

Fernandez, W. L.; Ignacio, E. V.; Linga, C. K.; Malapitan, A. H.

Philippine Agriculturist 54 (5/6) 202-209 (1970) [3 ref. En]

Multiplication of bacteria in "gata" was most rapid at 30°C storage. The generation time (the shortest time taken to double the population) between 0 h and 8 h was 44 min. The highest plate count was $2100 \times 10^6/\text{ml}$ "gata". Gram-positive cocci were predominant up to the 14th h and were then replaced by Gram-negative, short rods. At 10°C storage, the generation time was 111 min between 0 h and 16 h; it was $2.5 \times$ longer than at 30°C storage. A count of $280 \times 10^6/\text{ml}$ was the highest obtained. The prevalent form were Gram-positive, short rods. 10°C storage produced the slowest rate of multiplication. The generation time, based on the 8th-18th h, was 232 min; it was $2.1 \times$ slower than that at 20°C. The max. count was $2.6 \times 10^6/\text{ml}$. The predominant organisms were Gram-positive cocci. No bacterial endospores, fungi or yeast colonies were observed. The average initial pH of the gata was 6.5 and the average final pH when stored for 24 h at 30°C was 5.1; at 20°C, 5.5; and at 10°C, 6.1. AS

6 M 652

Milk and milk-based products for bakers.

Kirk, D.

Bakers' Digest 45 (5) 52-53 & 70 (1971) [3 ref. En] [Dry Milk Div., Land O'Lakes Inc., Eau Claire, Wisconsin, USA]

3 principal types of all-dairy-based blends (whey + caseinate with 30% protein, whey + non-fat buttermilk with 22% protein, and whey + caseinate + buttermilk with 16% protein) and 3 types of cereal-based blends (whey + corn + buttermilk with 21% protein, whey + soya + buttermilk and 35% protein and $\frac{1}{2}$ whey + $\frac{1}{2}$ soya with 30% protein) are currently commercially available. Typical analyses and functional characteristics of these blends are tabulated. Other milk products available are dried whole milk, buttermilk solids, dried cultured buttermilk and a dried blend of cultured skim-milk and whey. PG

6 P 814

[Manufacture of whole milk replacers for feeding young farm livestock.]

Voropaeva, V. S.

***Molochnaya Promyshlennost'* 33 (2) 7-9 (1972)**

[Ru] [Vses. Nauchno-issled. Inst. Molochnoi Promyshlennosti, Moscow, USSR]

The Russian ZTsM milk replacer is made by spray- or roller-drying a homogenized mixture of concentrated skim-milk, hydrogenated fats, phosphatide concentrates, antibiotics and vitamin A and ergocalciferol or cholecalciferol. The dry product should contain $\geq 17\%$ fat and $\leq 7\%$ moisture and have a solubility index (ml of wet residue) or ≤ 0.8 when spray-dried and ≤ 1.5 when roller-dried. The storage life of the replacer when packed in impervious multiple-ply (4-5) bags is ≤ 6 months at $\leq 10^\circ\text{C}$ and $\leq 70\%$ RH. The feed is at present manufactured in the USSR in >50 plants; the total output in 1971 was $\sim 10\,000$ tons. FL

6 P 833

[Cultured milk products of long storage life.]

Sauermilchprodukte mit verlängerter Haltbarkeit. Siegenthaler, E.

***Schweizerische Milchzeitung* 98 (16) 123-124**

(1972) [11 ref. De] [Verbandsmolkerei Bern AG, Berne, Switzerland]

After outlining the Aseptomatic system of cultured milks manufacture [FSTA 1969 1 11P1171], the author deals with the Sigotherm aseptic packaging machine [FSTA 1972 4 3P290] and products packaged on this machine at Verbandsmolkerei in Berne. These include yoghurt (storage life 6 wk, cooling necessary), quarg products, fresh cheese, cultured cream and cream quarg-based mayonnaise (storage life 2 months, cooling recommended) and desserts (storage life 4 months, cooling not necessary). A method for checking the effectiveness of sealing of the packages using a methylene blue solution for detecting leaks is outlined. FL

6 P 912

[Replacement of sodium caseinate.]

Ellinger, R. H.; Schwartz, M. G. (Stauffer Chemical Co.)

***United States Patent* 3 620 757 (1971) [En]**

This invention covers food compositions based on dried whey and incorporating preferably 25-35% of an alkali metal phosphate with a P_2O_5 content of $\geq 66\%$. Examples are given, in which such compositions are used to replace sodium caseinate in coffee whiteners, whipped topping bases, frozen desserts, imitation sour cream, imitation cream cheese and in shortenings. EJM

7 G 357

[Nutritional evaluation of food processing.] [A book]

Harris, R. S.; Loesecke, H. von (Editors)

xviii+612pp. ISBN 0 87055 110 8 (1960,

reprinted 1971) [Numerous ref. En]

[Continued from preceding abstr.] Effects of commercial storage on the nutrient content of

processed foods (pp. 337-390); Losses in nutrients during large-scale preparation for direct feeding (pp. 391-441); Losses in nutrients during home preparation of foods (pp. 442-491); Methods for increasing the nutritive value of foods (pp. 492-520); and Factors affecting utilization of food nutrients by the normal organism, by W. A. Krehl & J. J. Barboriak (pp. 521-541). Contributions by individual authors within the 13 major sections are: Foods of plant origin, by R. S. Harris (pp. 5-24); Foods of animal origin, by T. C. Byerly (pp. 25-49); Foods of plant origin, by H. W. von Loesecke (pp. 58-91); Foods of animal origin, by E. E. Rice (pp. 91-103); Washing, trimming, and blanching, by J. F. Feaster (pp. 109-126); Extracting, straining, and deaerating juices, by J. L. Heid (pp. 126-130); Pasteurization, sterilization, and storage, by J. L. Heid (pp. 131-133); Effects of ionizing radiations on food nutrients, by B. E. Proctor & S. A. Goldblith (pp. 133-144); Effect of antibiotics on nutrients in foods, by F. E. Deatherage (pp. 144-146); Effects of freezing on food nutrients, by J. L. Heid (pp. 146-148); Effects of drying and dehydration on food nutrients, by C. E. Hendel (pp. 148-157);

JA

7 J 1240

[Legume processing.]

Wagner, J. R. (United States of America, Secretary of Agriculture)

***United States Patent* 3 642 494 (1972) [En]**

Legume seeds are comminuted in the presence of an acid such as hydrochloric acid or phosphoric acid to produce bean-milk, purees and other food products of improved flavour. IFT

7 P 1030

[Particulate cheeselike compositions.]

Baron, A.

***United States Patent* 3 635 737 (1972) [En]**

It is claimed that free-flowing, palatable, cheese-like solids may be produced from dry HCl precipitated casein by incorporating minor amounts of one or more of the C_4 - C_8 monocarboxylic aliphatic acids with the casein. In one of the examples, the additives included succinic acid, disodium 5'-inosinate, disodium 5'-guanylate, NaCl, monosodium glutamate, propylene glycol, isovaleric acid and butyric acid. EJM

7 P 1052

[TLC of esterified and transesterified fats added to butter, and determination of mp of sterol acetates.]

Maglitto, C.; Funes, G.; Sevri, T.

***Latte* 44 (12) 874-876 (1970) [8 ref. It, fr, en,**

de] [Istituto Sperimentale per la Viticoltura, Conegliano, Treviso, Italy]

See FSTA (1971) 3 4P554.

7 P 1111

Method for manufacturing ice cream.

Lenderink & Co. NV

Netherlands Patent Application 7 009 789 (1972)

[NI]

A soft ice composition contains 0.2-0.8% (of DM) partially hydrolysed protein, obtained by alkaline, acid or enzymic hydrolysis of casein, soya protein or wheat protein. The composition is adjusted to pH <7, preferably ≤ 5 , by adding an edible acid. W&Co

8 G 416

Glazed food products.

Penton, E. W. (Eduardo's Industries)

United States Patent 3 653 924 (1972) [En]

Solid pieces of seasoning materials are extracted with a mixture of water and liquid fat. The resultant aqueous phase containing the fat-insoluble seasoning materials is used to make a liquid batter in which pieces of meat or vegetable food are coated and breaded if desired. The coated food is then glazed with the seasoned liquid fat phase and frozen. Poultry, fish, meat and vegetables are typical applications. IFT

8 J 1436

[Bean curd by-product.]

Nisshin Oil Mills Ltd.

Japanese Patent 7936/72 (1972) [Ja]

Bean curd refuse is water-extracted to yield a white, tasteless product which may be used in the production of various foods. IFT

8 L 641

[Powdered cream-like product.] Cremepulver für Speisezwecke.

Kaack, C.; Baum, W.; Heine, C. (Henkel & Cie GmbH)

West German Patent Application 2 022 776 (1971) [De]

Free-flowing powdered cream-like product used for cake fillings and decorations, particularly for instant cake mixes, contains the following ingredients: 70-80% (by wt. of the powdered cream) powdered components, comprising 25-99% (by wt.) powdered milk or egg, 1-5% gelatin, alginate, carob bean kernel flour, tragacanth, pectin, agar-agar, polyacrylic acid, polyvinyl alcohol, methyl cellulose, carboxymethyl cellulose, guar flour, or, preferably, pre-gelatinized starch to improve the whipping qualities of the cream, and $\leq 70\%$ icing sugar, glucose or vanilla sugar; and 20-30% fat, comprising (by wt. of total fat content) 85-93% edible fat, e.g. ground-nut oil with an mp of 30-35°C and dilatation of 800-1500, preferably 1100-1400 at 20°C, and 7-15% of a fat-dissolving emulsifier with hydrophilic/lipophilic balance (HLB) value of 5-16, preferably mono- and diglycerides of saturated and unsaturated fats, lactic acid monoglyceride, polyglycerin fatty acid esters, sorbitan fatty acid esters, polyoxyethylene fatty acid esters, diacetyl tartaric acid mono- or di-fatty acid glycerides, lecithin or mixtures of these, particularly 1 part by wt. polyoxyethylene sorbitan stearate and 4.5 parts by wt. sorbitan stearate. W&Co

8 P 1208

[Method for preparing emulsions.]

Unilever NV

Netherlands Patent Application 7 104 406 (1971)

[NI]

Emulsions of 2 liquids, e.g. high quality edible fat emulsions, are obtained by spraying a 1st liquid into a stream of a 2nd liquid, at a pressure differential of 100-400 atm. immediately before injection and a pressure of 1.5 atm. in the 2nd liquid. The stream of the 2nd liquid is preferably enclosed in a pipeline, and the 1st liquid is injected in the form of a cone which does not impinge on any enclosing walls. The liquids may, independently of each other, be an aqueous system, a fat or an emulsion (water-in-oil or oil-in-water). Any edible fat or oil composed of synthetic or natural glycerides may be used. Fat emulsions which may be produced include reconstituted milk (by injecting butterfat into skim-milk), filled milk for the manufacture of filled cheese or margarine cheese, and coffee cream. Pressure and temp. conditions for various processes are given. W&Co

9 G 439

New protein foods in the UK. A Delphi forecast.

Hudson, B. J. F.

Chemistry and Industry 1972 (6) 251-254 (1972)

[5 ref. En] [Dept. of Food Sci., Univ. of Reading, London Road, RG1 5AQ, UK]

The results of a Delphi forecast of the use of new protein foods in the UK are discussed. A panel of 42 experts was asked to predict the following: consumption of protein from various unconventional sources in 1981; the dates by which new protein sources will replace 5, 10 and 25% of the current UK consumption of meat, dairy products and animal feeds; and the dates by which soy, cereal, fish, leaf, unicellular, oilseed and other unconventional proteins will be officially approved, organoleptically acceptable and economically viable. Diagrams of results are given. It is predicted that by 1980, new proteins will have captured 10% of the meat market, 5% of the dairy products market and 10% of the animal feeds market; corresponding predictions for 1990 are 25, 10 and 25% respectively. Soybeans will be the most important new protein source, with unicellular, fish, legumes and other oilseeds as important secondary sources. Problems of official approval, sensory acceptability and economic viability are expected to be substantially overcome during the forthcoming decade. AJDW

9 G 449

Imitation sour cream.

Little, L. L. (Battelle Development Corp.)

United States Patent Release 27 381 (1972) [En]

Sour-cream type products are prepared without butter-fat or cultures by mixing an edible protein with an edible non-dairy lipid, chemical emulsifiers, and whey separation inhibitors (gums); pasteurizing and homogenizing; cooling; and adding an edible acid. IFT

9 J 1547

Preparation and evaluation of soybean curd with reduced beany flavour.

Schroder, D. J.; Jackson, H.

Journal of Food Science 37 (3) 450-451 (1972) [10 ref. En] [Dept. of Food Sci., Univ. of Alberta, Edmonton, Canada]

A process is described for the production of a bland soybean curd. Whole soybeans were blended with hot water (85-95°C) and the resulting soybean milk strained and steamed for 30 min. Precipitation of curd was effected by the addition of calcium sulphate. The curd was allowed to drain freely and then placed in small cheese hoops and pressed overnight. Taste panel evaluations of the pressed curd indicated that the beany flavour was reduced significantly. Meat product substitutes made from the curd by the addition of emulsifiers and flavouring agents were found to be very acceptable by a taste panel. IFT

9 P 1279

Southland's specialty products plant produces variety of sterile items.

Anon.

Southern Dairy Products Journal 90 (4) 8-9 & 12 (1972) [En]

The Sulphur Springs plant in Texas, USA, manufactures a number of milk specialties, including UHT products made in a steam-injection type sterilizer. UHT product range comprises whipping cream, 'half and half' and a coffee whitener. 2 packaging machines are used in sterile operations, i.e. a Formseal machine for small $\frac{1}{2}$ oz cups and a Pure-Pak machine for 1 qt, 1 pint and $\frac{1}{2}$ pint units. In addition, yoghurt in 9 flavours, cultured cream, dips in 8 flavours of which French onion is the most popular, orange juice, and 'Reddi Whip' aerosol product are manufactured. FL

9 P 1327

Method of preparing a simulated skim-milk.

Arndt, R. H. (Ralston Purina Co.)

United States Patent 3 642 492 (1972) [En]

A simulated dried skim-milk product is prepared by producing an aqueous slurry of neutralized, defatted soya bean protein meal or flakes, subjecting this slurry to a 'dynamic physico-thermo-vapour' flash treatment in order to remove any objectionable flavour component, blending 11-25% of this ingredient with 89-75% of sweet dairy whey, adjusting the pH of the mixture to 6.6-7.0, adding a small amount of edible whitening agent and drying the mixture. EJM

9 P 1328

Method of preparing a simulated milk product.

Arndt, R. H. (Ralston Purina Co.)

United States Patent 3 642 493 (1972) [En]

A simulated whole milk beverage is prepared by producing a defatted soya bean protein ingredient subjected to special "physico-thermo-vapour" flash treatment to remove objectionable flavours, and

combining this ingredient with sweet dairy whey and vegetable fat in the correct proportions to simulate the composition of whole milk. The pH is adjusted to within the range 6.7-7.1 and the mixture subjected to severe homogenization, pasteurization and vacuum treatment. The product may also be spray-dried and used in reconstituted form. EJM

10 H 1569

A study of the chemical changes relating to flavour of soybean extracts.

Lao, T. B.

Dissertation Abstracts International. Section B. The Sciences and Engineering 32 (10) 5858-5859 (1972) [En] [Univ. of Illinois, Urbana-Champaign, USA]

Lipoxidase-catalysed off-flavour formation in soymilk was investigated. An assay method for lipoxidase was developed, based on spectrophotometric determination of the rate of conjugated diene formation with sodium linoleate at pH 9.0; reproducibility of the method was $\pm 2\%$. Soymilk extracted at pH 2.0 showed no lipoxidase activity; no enzyme reactivation occurred during storage at 4°C for 64 h. Propyl gallate, α -tocopherol, BHA, BHT, citric acid, ascorbic acid, santocin and EDTA did not prevent off-flavour formation. Triobarbituric acid value were correlated with the lipoxigenase activity of heated soybeans. Volatiles from soymilk extracted at pH 6.5 and 25°C possessed a beany, painty and oxidized flavour; a slight beany flavour was associated with samples extracted at pH 2.0 (25°C) and pH 6.5 (95°C). Soymilk extracted at pH 9.5 possessed a strong beany flavour, and samples extracted at 95°C (pH 6.5) and held in a steamer for 1 h possessed a cabbage-sulphide type flavour. Soymilk extracted at pH 6.5 contained benzene, pentanal, 1-pentane-3-one, hexenal, 1-pentanol, 3-octanone, 2-heptenal, 1-hexanol, 3-octanol, nonanal, 1-octen-3-ol, 2-octenal, 2,4-heptadienal, benzaldehyde, 1-octanol, 2-octen-1-ol, 1-nonanol and 2,4-nonadienal. AJDW

10 J 1638

[Soybean flavour improvement.]

Showa Sangyo Co. Ltd.

Japanese Patent 13 689/72 (1972) [Ja]

An aqueous acidic slurry of fresh soybean or defatted soybean cake is inoculated with an aerobic microorganism and cultured under anaerobic conditions to yield a product of improved odour and flavour. IFT

10 J 1640

[Packaged bean curd product.]

Yagi, K.

Japanese Patent 13 690/72 (1972) [Ja]

Dried bean curd is cooked, soaked in a soy sauce, and introduced into a bag with soy sauce mixture containing preservatives, spices and binders. After removal of the air from the bag, it is sealed and steam heated. IFT

10 J 1672

[Soybean foods.]

Zenkoku Koyadofu Kogyo Kyodoku Miai
Rengokai**Japanese Patent** 17 821/72 (1972) [Ja]

Calcium chloride is added to a conc. soybean milk and the mixture held at -10 to 15°C for ~7 days. It is then ripened at -1 to +3°C to denature the protein. IFT

10 P 1619

New imitation cheeses are versatile.

Dietz, J. H.; Ziemba, J.

Food Engineering 44 (7) 60-61 (1972) [En] [Int. Venture Res. Div. of Peavey Co., Chaska, Minnesota, USA]

The production of low-cost imitation Cheddar and blue cheeses is outlined. The major dry ingredients, wheat flour, solids (whey, buttermilk and corn syrup) and soy flour, are weighed, and conveyed into a 500-lb capacity blender. Melted shortening is then added along with minor ingredients (salt, imitation cheese flavour, xanthan gum, food colouring etc.). The batch is thoroughly blended for ~15 min; it is then bottom-discharged to a vibrating hopper. From the hopper the dry mix is passed into a modified meat grinder fitted with a plate containing twenty-four $\frac{1}{4}$ in. square dies and a double-bladed rotary knife. Extrusion is at the rate of 400-500 lb/h. The $\frac{1}{4}$ " cubes discharged from the extruder are cooled and bulk-packaged in polyethylene-lined corrugated cartons. The cubes are already being used in salad garnishes. Potential applications include baked goods and dressings. AB

11 D 554

[The dairy industry in Jären, Norway.] Die Milchwirtschaft in Jären.

Hansen, R.

Nordeuropæisk Mejeri-Tidsskrift 38 (5) 94-101 (1972) [Da & De]

The Jären area (~1000 km²), situated south of Stavanger, is the major dairying area of Norway, producing ~170 million kg/yr, which accounts for ~10% of the country's total milk output. There are 3 large dairies in the area, one (Frue-Meierei) being an exclusively liquid milk plant for supplying Stavanger and its surroundings (~170 000 inhabitants) and 2 other areas with milk, the remaining 2 being engaged in Gouda cheese manufacture and 1 also produces a milk replacer. The manufacturing process for the milk replacer, produced on an Anhydro plant, involves the use of lecithin and agglomeration. The plant may also be used for the manufacture of instant skim-milk. The capacity is 1700 kg product/h FL

11 G 520

Artificial milk.

Waite, R.

Journal of the Society of Dairy Technology 25 (2) 92-95 (1972) [En] [Hannah Dairy Res. Inst., Ayr, UK]

After defining, 'filled', 'imitation' and 'synthetic' milks, reasons for their production, and sales of artificial milk and legislation in USA and UK, are discussed. The chemical composition of filled and imitation milks is compared with that of whole milk. Other aspects considered are manufacture, nutritive value and use in infant feeds. It is concluded that the sale of liquid artificial milks poses no challenge at present to the British dairy farmer, but that sales of artificial milk powder could be disadvantageous for the milk producer, particularly if all the ingredients are imported. CDP

11 H 1671

Methods of preparation and properties of water extracts of soybeans.

Al-Kishtaini, S. F.

Dissertation Abstracts International. Section B. The Sciences and Engineering 32 (10) 5855: Order no. 72-12 060 (1972) [En] [Univ. of Illinois, Urbana 61801, USA]

Optimum yields of soymilk, extracted solids, lipid and protein were obtained by water extraction (pH 6.5) of soybean flour at 65-75°C. Extraction at 75°C was insufficient to prevent lipoxygenase activity, so extracts had an oxidized painty flavour. Soymilk free from this flavour was produced by extracting soaked dehulled beans (i) with boiling water (pH 6.5) or (ii) at 25°C at pH ≤3.0, or (iii) at 25°C at pH 9.5. Optimum extraction is obtained at pH 2.0, (i) and (ii) completely and irreversibly inactivated lipoxygenases. (iii) extract had high lipoxygenase activity; it is postulated that with (iii), enzymes which break down hydroperoxides are inactivated and thus volatiles responsible for oxidized flavour are not formed. Organoleptic evaluation of soymilks, after adjusting to pH 6.5, showed a relatively bland flavour but indicated preference for (i) extracted soymilk. Some soybean trypsin inhibitor (STI) fractions were heat resistant at pH 2.0. Heating soymilk at pH 6.5 to 200°F for 50 min or 250°F for 3 min inactivated >90% of STI. Preparation of aseptically canned sterile soymilk and soymilk yoghurt is mentioned. JA

11 J 1828

Coconut water, the liquid component of the coconut endosperm. Note on terminology.

Pieris, W. V. D.

Oleagineux 26 (6) 383-390 (1971) [83 ref. En, es, fr]

Coconut water, the liquid filling the central cavity of the nut is distinguished from coconut milk, the milky extract obtained by pressing fresh coconut meal. The history of the terminological confusion and eventual agreement is illustrated by an annotated bibliography of more than 80 references from 1833-1966. RM

11 P 1713

Update.....Update.....Update Convention.

[Conference proceedings]

United States of America, Milk Industry**Foundation; International Association of Ice Cream****Manufacturers.**

103pp. (Undated) [36 ref. En]

This collection of papers from the convention, held in San Francisco, California on Nov. 1, 1971, includes the following: The need for new dairy policies, by H. E. Ebert (6pp.); New uses for liquid acid whey - an ingredient for frozen desserts, by W. S. Arbuckle & R. Singh (14pp. 10 ref.); three papers on Facing your public on environmental issues, by G. Huffmann (3pp., mainly on packaging), by C. Lamar (5pp., how Pure-Pack faced the package disposal problem), and by J. J. Wuerthner, Jr. (8pp., a talk, mainly on disposal of glass containers, illustrated by 65 slides); The plastics approach, by R. C. Schoeder (12pp.); Consumer opinion about dairy products and imitations, by M. Weidenhamer (25pp.); Needed - a new testing standard, by H. L. Wildasin (11pp. 26 ref., chemical tests on milk for scale); and The regulation of dairy products, by V. O. Wodicka (11pp.). CDP

11 P 1767

Cocoa dairy drink.

McGinley, E. J.; Zuban, J. M.

United States Patent 3 684 523 (1972) [En]

A heat sterilized stable artificial aqueous dairy drink containing cocoa, an edible fat, fatty oil or mixtures of these, and a stabilizing amount of finely-divided water soluble β -1,4-glucan is described. IFT

11 T 615

[Studies on the utilization of cellulase. I. On the extraction of the soybean protein.]

Sung, N. K.; Kim, M. C.; Ki, W. K.

1572dd 8: 93-96 (1969) [12 ref. Ko, en] [Dept. of Agric. Chem., Chinju Nat. Agric. Coll., Kyungsangnam-Do, Korea]

Utilization of cellulolytic enzyme derived from *Trichoderma viride* in food processing was studied. The crude enzyme extracted from *Trichoderma viride* had high extractibility of protein from soybean and soybean refuse. Increases in yield of 5-7% in soymilk and 24-44% in bean curd were observed. Most of the protease from *Trichoderma viride* was eliminated with little loss of cellulolytic activity by heat treatment. KoSFoST

12 G 566

[Cheese-like soybean food.]

Asahi Electro-Chemical Co. Ltd.

Japanese Patent 20 381/72 (1972) [Ja]

Dehydrated soybean curd is combined with a fungus having strong proteolytic activity, a lactic acid starter and NaCl and held at controlled

conditions of temp. and humidity to yield a "soybean cheese" which is then mixed with sake cake. IFT

12 G 568

[Soybean foodstuff.]

Tanaka, Y.

Japanese Patent 23 029/72 (1972) [Ja]

Soybean milk, a coagulant, and food solids such as sliced fruit or fish are combined to yield a final coagulated product with uniform distribution of solids. The process is continuous. IFT

12 G 608

Synthetic and artificial food. [A lecture]

Pike, M.

British Food Journal 74 (849) 101-102 (1972) [En]

Margarine is given as an example of an artificial food. "Artificial" low-calorie margarines are now being produced with up to 50% water by incorporating a thickener, or by using medium-chain triglycerides in place of natural fats. Artificial meat is made by extruding an alkaline dispersion of protein extracted from soy, sunflower seeds etc., through spinnerettes into a coagulating batch and stretching the fibres until the required toughness is attained. The fibres are then combined with fat, coloured and flavoured. Special treatments may be required depending on the meat imitated. Combinations of real and artificial meat are also possible. Artificial milk is made from soybeans by soaking them in water, homogenizing the slurry, inoculating it with a mixture of moulds including *Aspergillus oryzae*, incubating a few hours and then sterilizing and homogenizing again. Filled milk is manufactured from dried skim-milk, a vegetable fat and an emulsifier. PG

12 P 1858

Biogenesis of cheese flavour components.

Kristoffersen, T.

Abstracts of Papers. American Chemical Society 164: AGFD 67 (1972) [En] [Dept. of Food Sci. & Nutr., Ohio St. Univ., Columbus 43210, USA]

12 P 1881

Milk products, and processes for their preparation.

Milchwirtschaftliche Forschungs- &

Untersuchungsgesellschaft mbH

British Patent 1 273 943 (1972) [En]

A type of coprecipitate, produced by coagulating skim-milk with CaCl_2 , heating to 90°C for 5 min and adding hydrochloric acid to lower pH to 5.3-5.4, separating and washing the protein fraction, adding 5% sodium polyphosphate (on the basis of solids content of the fraction, ~30%), melting it by heating, and roller-drying at 110°C to a moisture content of 6%. The product is ground and the fine

protein fraction dispersed in 1% fat milk which then serves as the basic material for a series of milk products, such as chocolate milk, coffee drink, yoghurt (fruit yoghurt) and other fermented milks.
FL

12 T 692

Food emulsifiers - science and art.

Nash, N. H.; Brickman, L. M.

***Journal of the American Oil Chemists' Society* 49**

(8) 457-461 (1972) [7 ref. En] [PVO

International, Inc., 416 Division Street, Boonton, New Jersey 7005, USA]

General classifications of food emulsifiers are presented, their functions are discussed. Examples of many food products are given, and recommended emulsifier usage levels are presented. Some of the food applications cited include: cakes, icings, toppings, bread, sweet goods, frozen desserts, coffee whiteners, peanut butter, margarine and confectionery coatings. AS

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FOOD ANNOTATED BIBLIOGRAPHIES

Selected abstracts from Food Science and Technology Abstracts on important specialized aspects of food science and technology are now available as Food Annotated Bibliographies (FABs).

The FABs already completed are listed below, and further FABs are in preparation. Suggestions are welcomed for specific topics for additional bibliographies.

FAB	Title	No. Ref.	Price	Vol. 1-3	No. Ref.	Price	Vol. 4	Vol. 5 (1973) Monthly (12 issues)
1.	Application of Reverse Osmosis to Food Processing	104	£2.00		58	£2.00		£4.00
2.	New Sources of Food Protein	662	£6.00		332	£3.50		£9.00
3.	Natural and Synthetic Sweeteners	338	£3.50		198	£2.00		£6.00
4.	Techniques for Analysis of Flavour Volatiles	367	£4.00		237	£2.50		£7.00
5.	Microwaves in Food Processing	160	£2.00		103	£2.00		£5.00
6.	Texture Analysis of Foods	426	£4.50		429	£4.50		£11.00
7.	Synthetic Dairy Products	150	£2.00		88	£2.00		£4.00
8.	Acidulants in Foods	413	£4.50		200	£2.50		£7.00
9.	Agglomeration of Powders	73	£2.00		34	£2.00		£4.00
10.	Aseptic Packaging	131	£2.00		79	£2.00		£4.00
11.	EEC Regulations	55	£2.00		64	£2.00		£4.00
12.	Toxicology of Food Additives	118	£2.00		106	£2.00		£5.00
13.	Deep Fat Frying	400	£4.00		248	£2.50		£7.00
14.	Viscosity of Foods	399	£4.00		212	£2.50		£7.00
15.	Taste Panels in Food Science	78	£2.00		86	£2.00		£4.00
16.	Taints in Foods	126	£2.00		77	£2.00		£4.00
17.	Microbial Toxins in Foods	113	£2.00		87	£2.00		£4.00
18.	Smoked Food Products	249	£2.50		112	£2.00		£5.00
19.	Disposal of Waste Food Products	395	£4.00		262	£3.00		£8.00
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FAB 7

SYNTHETIC DAIRY PRODUCTS

SELECTED FROM VOLUME 5

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of

Commonwealth Agricultural Bureaux, Farnham Royal, Bucks; Institut für Dokumentationswesen, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen; Zentralstelle für maschinelle Dokumentation—Frankfurt am Main.

INTRODUCTION

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Coverage of the subject has been restricted to that of Food Science and Technology Abstracts, which covers over 1200 of the important food journals, patents from 20 countries and books published world-wide. Every effort is made to include all significant references, but editorial discretion is used on the many articles of borderline interest. If the reader particularly needs an exhaustive search of the subject, we will be pleased to provide any other references that we have available. We would, in any case, encourage readers to write or telephone us with any comments or queries that they may have.

H. BROOKES

ASSISTANT EDITOR

1 G 10

Technology of production of edible flours and protein products from soybean.

De, S. S. (Food & Agriculture Organization) *Agricultural Services Bulletin, Food & Agricultural Organization No. 11*, vii + 151pp. (1971) [37 ref. En] [Rome, Italy]

The following chapters are included:

Introduction (composition, grading, storage, handling of soybeans) (pp. 1-16); Oil milling practices (pp. 17-25); Quality control of edible flour and grits (pp. 26-32); PAG guideline for edible, heat processed soy grits and flour (pp. 33-39, 21 ref.); Process procedure for production of soy flour and grits (pp. 40-73); Production of full fat soy flour (pp. 74-111); Protein isolate (pp. 112-125); Production of other soy products (pp. 126-146, 16 ref.); and List of equipment suppliers (pp. 147-151). VJG

1 G 62

[Taste of new protein substances and their utilization in food.]

Pikielna, N.

Przemysł Spożywczy 26 (9) 381-385 (1972) [32 ref. Pl]

A brief review is given of methods of producing neutral-flavoured protein products and imparting desired flavours to such products; and of the sources of undesirable flavour and taste in protein products, specifically soya, rapeseed, sunflower, cottonseed, peanut, coconut, milk, fish and yeast proteins. HBr

1 H 96

Totesystem ensures hygienic handling of Coffee-Mate.

Anon.

Food Trade Review 42 (9) 12-13 (1972) [En]

A description is given of the Alcon Container Systems' Totesystem installed by Carnation Foods Ltd. for their powdered non-milk product Coffee-Mate. VJG

1 P 9

Whey products - established and new.

O'Sullivan, A. C.; Delaney, R. A. M.

Food Progress No. 5, 1-2, 4 (1972) [3 ref. En] [An Foras Taluntais, Moorepark, Fermoy, Co. Cork, Irish Republic]

This article briefly discusses the range of established and new products. Established products are subdivided into those based on whole whey (liquid, condensed and dried whey), and those derived from individual whey constituents (whey butter, denatured whey proteins and defatted deproteinized whey). As a result of increased whey availability, greater emphasis on pollution prevention, and increased cost of dried skim-milk, greater utilization of whey products is predicted. CDP

1 P 25

Sterilized dairy and analogue products. [Lecture]

Glaser, E.

Journal of Milk and Food Technology 35 (8) 464-466 (1972) [En] [Avoset Food Corp., 80 Grand, Oakland, California, USA]

The paper discusses changes taking place in processing, packaging, and distribution of sterilized dairy products. The origins and purposes of present governmental controls are reviewed in the light of these changes. The impact of substitutes for dairy products is discussed, and the need for a new approach to regulating dairy products in a manner which would reflect the changes taking place in the industry is stressed. AS

1 P 57

[Process for obtaining reconstituted milk.]

Maillols, M.

French Patent Application 2 092 782 (1972) [Fr]

A food, claimed to resemble human milk in composition, comprises: 20-30% fat ingredients, e.g. butter, cream, or edible oils made emulsifiable by addition of sucroglycerides and lecithins; 15-25% mainly denaturated proteins, e.g. specially treated autolysates, casein, or yeast autolysates; 50-55% glucides, e.g. lactose, galactose, or sucrose; and various additives, e.g. trace elements, biocatalysts and mineral salts. The soluble ingredients are formed into an aqueous solution, or skim-milk may be used. The fat ingredients are added in liquid form and the emulsifying agent is introduced. The mixture is agitated at 500 rev/min for 5 min, concentrated and spray- or freeze-dried. W&Co

1 P 84

[Technology, characteristics and biological value of the proteins of ripened cheese-like products obtained by heat coagulation.]

Poznanski, S.; Surazynski, A.; Sobina, A.;

Jakubowski, J.; Smietana, Z.; Chudy, J.

Przemysł Spożywczy 26 (8) 345-348 (1972) [11 ref. Pl, ru, en, fr, de] [Inst. Inżynierii i Biotech. Żywności, WSR, Olsztyn, Poland]

This article contains essentially the same information as presented in FSTA (1971) 3 12P2116. Products of the (i) Edam-Tilsit, (ii) Rokpol (Polish Roquefort cheese) and (iii) Grana types are said to resemble closely their original counterparts. Net-protein utilization (NPU) values determined on rats were for (i)-(iii) respectively 70-72, 62 and 76 vs. 56 for Edam cheese, 60 for Tilsit cheese, 56 for Camembert cheese and 53 for Emmental cheese. SKK

2 C 41

Interactions of food starter cultures and food-borne pathogens: *Streptococcus diacetylactis* versus food pathogens.

Daly, C.; Sandine, W. E.; Elliker, P. R.

Journal of Milk and Food Technology 35 (6) 349-

357 (1972) [43 ref. En] [Dept. of Microbiol., Oregon St. Univ., Corvallis, 97331, USA]

The ability of *Streptococcus diacetylactis* to inhibit a variety of food spoilage organisms and pathogens in milk and broth cultures was demonstrated. Test organisms included *Pseudomonas* and *Alcaligenes* spp., *Salmonella*, *Staphylococcus aureus*, *Clostridium perfringens* and *Vibrio parahaemolyticus*. In general, approx. 99.0 and 99.9% inhibition was observed in milk and broth, respectively. Possible practical applications of the inhibition were examined. Addition of *Str. diacetylactis* extended the shelf life of artificially contaminated Cottage cheese and prevented proteolysis in milk at 7.5°C by *Pseudomonas fluorescens*. *Staphylococcus aureus* was inhibited >99% in vanilla cream filling, ham sandwich spread, chicken gravy, soya milk, and ground beef stored at 25°C for 24 h. Development of the Gram-negative flora of ground beef was also inhibited >99% after storage at 7.5°C for 7 days. Possible roles of several factors in the mechanism of inhibition by *Str. diacetylactis* are briefly discussed. The effects of pH reached and acids produced by *Str. diacetylactis* on the growth of *Staph. aureus* are described. A greater role of the lactic acid bacteria in fermentations in the food industry is suggested. AS

2 G 82

[Synthetic cheese product.]

Sekiya, Y.

Japanese Patent 47 143/72 (1972) [Ja]

A mixture of molasses and malt pretreated with yeast is added to a mixture of powdered vegetable protein and starch and blended at 30-45°C for ≤15 h. After addition of vegetable oil, the composition is heated and cooled for packaging. IFT

2 J 325

[Soybean milk preparation.]

Kikkoman Soyoyu Co. Ltd.

Japanese Patent 38 178/72 (1972) [Ja]

Process for preparing soybean milk involves treatment with α-galactosidase. IFT

2 N 60

[Synthetic butter fats.]

Nippon Oils & Fats Co. Ltd.

Japanese Patent 34 935/72 (1972) [Ja]

Fats for synthetic butter production for use in confectionery or the like are prepared by mixing up to 10% tributyl glyceride with mixtures of suet, palm, lard, coconut, palm seed oil or their hardened oils, with subsequent interesterification. IFT

2 P 113

[Artificial milk.]

Morinaga Milk Industry Co. Ltd.

Japanese Patent 34 936/72 (1972) [Ja]

An artificial milk suitable for infant feeding is mixed by combining whey with casein having reduced alpha-casein content. IFT

3 G 155

The prospects for non-conventional protein resources.

Spensley, P. C.; Halliday, D.; Orr, E.

Tropical Science 14 (3) 203-233 (1972) [52 ref. En] [Tropical Products Inst., 56-62 Grays Inn Rd., London WC1X 8LU, UK]

This paper reviews the current position regarding the production and utilization of unconventional protein sources, with reference to the potential contribution to the relief of protein malnutrition in developing countries. Discussion of the utilization of unconventional protein materials covers: protein foods (prepared dietary foods); fortification of staples with synthetic amino acids and protein concentrates; and use of protein concentrates for production of meat and milk analogues. Production of unconventional protein materials is considered, including those from: oilseed protein products such as soya, cottonseed, groundnuts, coconut, sesame, mustard seed, rapeseed and crambe seed; cereal milling by-products; fish protein concentrate; leaf protein; and single cell protein. AA

3 P 351

Identification of some neutral high boiling compounds in molecular distillates from Cheddar cheese fat.

O'Keefe, P. W.

1143bc 33 (1) 257-258: Order no. 72-20 755 (1972) [En] [Oregon St. Univ., Corvallis, USA]

33 compounds separated from molecular distillates of Cheddar cheese fat included: δ-C₁₀, C₁₂, C₁₄, C₁₅ and C₁₆ lactones; γ-C₁₂, C₁₄ and C₁₆ lactones; methyl and ethyl hexadecanoates, octadecanoates and tetradecanoates; n-C₁₆-C₂₅ alkanes; diethyl, dibutyl and bis(2-ethylhexyl) phthalates; n-hexadecanal; BHT; and benzaldehyde. Tentative identification was made of 2,6-di-tert-butyl-4-ethylphenol, 1-octadecanol, dibutyl adipate, ethyl octadecadienoate and octadecatrienoate, heptadecyl and octadecyl butyrate, pentadecyl hexanoate, tetracosane (branched) and δ-C₁₈ lactone. Flavour of a simulated Cheddar cheese mixture, prepared by blending ketones, aldehydes, acids and 3-mercaptopropionic acid with safflower oil and washed Cottage cheese curds, was enhanced by the addition of 4 ppm δ-dodecalactone and 15 ppm δ-tetradecalactone; lactones constituted about 70% of the high boiling compounds in the molecular distillates. In cheeses wrapped in Parakote film, slightly higher concn. of hydrocarbons were found in the outer surface than in the centre; with wax-coated cheeses, evidence of diffusion of hydrocarbon compounds was greater. n-Alkanes from C₂₁ to C₂₅ were present in concn. of 5 ppm in the fat of wax-coated cheeses compared to 0.24 ppm in cheeses in Parakote film. Lactobacilli added during Cheddar cheese manufacture were found to have little influence on the production of neutral high boiling compounds. SAC

3 P 367

[Preliminary report on the detection of foreign protein in adulterated milk products by means of disk electrophoresis and polarography.]

Doguchi, M.

Annual Report of Tokyo Metropolitan Research Laboratory of Public Health 22, 135-140 (1970) [10 ref. Ja, en] [Tokyo Metropolitan Res. Lab. of Public Health, Japan]

Neither disk electrophoresis nor polarography were effective in detecting the addition of soya bean protein to milk casein, even when soya bean protein concn. was double the casein concn. It was suggested, however, that detection of casein in market milk products by polarography might be feasible. [From En summ.] DMK

3 T 130

Enzymatically produced flavours for fatty systems.
Nelson, J. H.

Journal of the American Oil Chemists' Society 49 (10) 559-562 (1972) [16 ref. En] [Dairyland Food Lab. Inc., 620 Progress Avenue, Waukesha, Wisconsin 53186, USA]

Technology has been developed for the production of flavor systems via controlled enzyme modification of fats. Lipases and esterases from various sources are used. Fats modified include milk fat and meat fats. A wide range of flavor profiles can be produced via control of enzyme, fat and processing prior to and subsequent to enzyme modification. Applications for the flavor systems include margarine, imitation dairy products, confections and prepared foods. AS

4 D 222

New proteins for old?

Bender, D.

Nutrition and Food Science No. 25, 22-24 (1971) [En]

New methods of supplementing the amount of conventional protein foods available are discussed, including: production of bacterial and yeast protein on oil-refinery residues; growth of mould on carbohydrate sources such as waste starch from milling processes; textured protein from soya bean; and imitation milk from peanuts. The problems of making such products acceptable and the need to simulate foods currently being eaten are discussed, with reference being made to the production of simulated chicken meat, steak and caviare. AA

4 G 213

Simulated cheese.

Quaker Oats Co.

British Patent 1 295 416 (1972) [En]

High protein, simulated cheese is produced by

extrusion in the form of small strands of compositions comprising mixtures of sugar or sugar equivalent, pre-gelatinized starch, and sufficient high protein binding agent to provide >20% by wt. protein in the finished product. IFT

5 G 224

Liquid cream replacer is freeze, heat stable.

Anon.

Food Processing 33 (12) 34 (1972) [En]

The product contains 40% hydrogenated vegetable oil, 2.5% protein and 3.0% carbohydrate. It may be heated to 240° F without discoloration, and may replace 40% cream on a 1:1 basis. Applications include sauces, gravies, toppings, puddings and dessert products. JN

5 G 225

Dry filled milk ingredient enhances flavour, mouthfeel of dry dessert mix.

Anon.

Food Processing 33 (12) 33 (1972) [En]

'Vanilla Freeze', a dry mix containing vegetable oils, stabilizers and vegetable gums, used for home preparation of frozen dessert is described. JN

5 G 244

[Studies on utilization of soybean protein.]

Shindo, K.; Maki, M.; Ishida, T.

Japanese Journal of Nutrition [Eiyogaku Zasshi] 29 (3) 137-140 (1971) [3 ref. Ja, en] [Yamagata Prefecture, Yonezawa Women's Junior Coll., Japan]

Soybean milk prepared from powdered soybeans was coagulated with calcium sulphate, and then the coagulant was dried. By coagulation after the addition of a little soybean oil, or by drying after treatment with 20% saline solution during manufacture, preservability, elasticity, solubility in hot water and good taste harmonized with both deliciousness and saltiness were given to the new food. AS

5 H 773

Growth and activity of lactic acid bacteria in soymilk.

Gaddi, A. L.

Dissertation Abstracts International, B 31 (6) 3467: Order No. 70 20 841 (1970) [En] [Univ. of Wisconsin, Madison 6, USA]

Soymilk produced by comminuting Chippewa soybeans with water was used as a growth medium for lactic acid bacteria. Acid production by bacteria appeared to be dependent on their ability to utilize available sugars. Addition of protein digests resulted in formation of more acid by *Streptococcus thermophilus*, the *Leuconostoc* species and *Lactobacillus pentosus*, and less by *Lactobacillus delbrueckii*. *Str. thermophilus*, *L. pentosus*, *L. delbrueckii* and *Leuconostoc mesenteroides*

produced sufficient acid to cause coagulation of soymilk. Heating soymilk to temp. $\leq 100^{\circ}\text{C}$ reduced its suitability as a substrate, but more prolonged heating at 100°C or 120°C progressively improved this quality. *L. delbrueckii* and *L. casei* exhibited appreciable lipolytic activity in soymilk and MRS broth containing emulsified soybean oil, and *S. thermophilus* exhibited slight lipolytic activity. *L. delbrueckii* and *S. thermophilus* exhibited proteolytic activity in soymilk. PG

5 J 762

Soybean curd product.

Ueno, R. (Ueno Seiyaku Oyo Kenkyujo Co. Ltd.)
United States Patent 3 712 823 (1973) [En]

In a process for producing packaged soya bean curd, prepackaged soya bean milk is subjected to high frequency electrical irradiation to increase its temp. and effect coagulation. IFT

5 J 763

[Soya bean milk.]

Suminoe, K.; Suminoe, T.

Japanese Patent 45 505/72 (1972) [Ja]

An aqueous soya bean slurry is heated with monosodium phosphate to produce a high yield soya bean milk product. IFT

5 N 236

Recycling of effluent from membrane processing of cottonseed wheys.

Lawhon, J. T.; Lin, S. H. C.; Cater, C. M.; Mattil, K. F.

Food Technology 27 (2) 26-27, 30, 32, 34 (1973) [8 ref. En] [Texas A&M Univ., Food Protein Res. & Development Center, College Station, Texas 77843, USA]

Whey disposal, a potential problem of food processors isolating protein from cottonseed and other oilseeds, was investigated. The possibility of recycling the effluent from membrane processing of cottonseed wheys back to the beginning of the protein isolation process for re-use was examined. 2 cottonseed wheys from different protein isolation processes and one soy whey were tested using an ultrafiltration membrane followed by a reverse osmosis membrane, permeates from the latter were re-used in subsequent flour extractions. Results indicated that recycling of the reverse osmosis permeates from cottonseed wheys was quite feasible and that this process innovation could be used to prevent water pollution and reduce process water requirements. AA

5 P 582

Specialist courses for the food industry, No. 3, 2-3 August, 1972. Seminar on Recombined Dairy Products.

Australia, CSIRO Division of Food Research iv+88pp. (1972) [many ref. En] North Ryde, New South Wales, Australia, Author

The following papers were presented and discussed at the seminar: Recombined products-

research and development, by B. S. Harrap (pp. 1-3); The effect of processing on milk constituents, by R. D. Hill (pp. 4-8, 17 ref.); Milk proteins in recombining, by L. L. Muller (pp. 9-16, 19 ref.); Manufacture of specialized milk powders, by L. P. Brady (pp. 17-22, 4 ref.); Recombined butter, by R. A. Buchanan & W. P. Rogers (pp. 23-27, 6 ref.); Special diet foods, by J. O. Henderson (pp. 28-33, 33 ref., human milk substitutes, products for various ailments, high protein foods); Anhydrous and fractionated milk fat, by B. D. Dixon (pp. 34-42, 38 ref.); Cheese from recombined milk, by J. Czulak (pp. 43-45, 6 ref.); Evaporated milk, by D. I. Gillies (pp. 46-50); Recombined sweetened condensed milk, by F. G. Kieseker (pp. 51-57, 18 ref.); Fermented products from recombined milk, by L. A. Hammond (pp. 58-64, 7 ref.); Recombined milk and cream, by D. I. Shew (pp. 65-70, 17 ref.); Economic and marketing aspects of recombined dairy products in developing countries, by E. B. Gilbert (pp. 71-75); Recombining and nutrition, by R. A. Buchanan (pp. 76-81, 23 ref.); and Recombined dairy products of the future, by N. S. Snow (pp. 82-86). CDP

5 P 583

Reconstituted and recombined dairy products.

Sayce, W. H.; Park, W. J.

Food Technology in New Zealand 7 (1) 16-18 (1972) [En]

Advantages to countries importing large amounts of dairy products, of importing butter oil and dried skim-milk then recombining these to form other dairy products, are discussed; these include lowering of bulk transport costs, control of the rate of manufacture to meet demand, provision of local work, and increasing the shelf life of materials without freezing or canning. Diagrams are presented of the processing line for the manufacture of butter, whole milk, flavoured milk, ice cream and sweetened condensed milk; 2 methods of cheese manufacture are also described. SPT

5 P 640

[Method for producing a food product having a matured cheese flavour.]

Ney, K. H.; Wirotama, I. P. G.; Freytag, W. G. (Unilever NV)

Netherlands Patent Application 7 204 792 (1972) [NI]

Cheese products having a flavour of ripened cheese, e.g. Emmental or Cheddar, are obtained by adding a cheese flavour composition which, among the usual ingredients, contains a C_{3-5} synthetic alkylamine in sufficient quantity to produce a concn. of 0.1-80.0 mg/kg in the final product. A Cheddar cheese flavour composition contains preferably also C_{2-10} alkanolic acids, of which $\geq 50\%$ have >4 C atoms (preferably 40-60% hexanoic acid, $\leq 40\%$ C_{7-10} alkanolic acids and $\leq 40\%$ C_{4-5} alkanolic acids having branched chains) in such quantity that the concn. in the food product is 120-1500 mg/kg. The food product may be further improved by adding succinic acid and a mixture of certain amino

acids. An Emmental cheese flavour composition contains preferably also C₇₋₉ synthetic aldehydes containing a phenyl group. The concn. of these compounds in the final food product is preferably 0.2-18.0 mg/kg. A mixture of certain amino acids may also be incorporated. W&Co

5 P 656

Soy-whey-milk offers economic substitute for frozen whole milk concentrate.

Anon.

Quick Frozen Foods 34 (9) 100, 141-142 (1972) [En]

A method to produce flavourless soy-whey-milk has been developed which uses whole soybeans instead of the meal remaining after soybean oil extraction. Boiling the soybeans neutralizes the enzyme that caused the characteristic bad flavour of soy. Soy-whey-milk is cheaper than milk and is a good milk substitute. It can be used to make frozen concentrate, soft-serve type desserts and prepared foods. VJG

5 P 683

Texas dairy focuses on special products.

Anon.

American Dairy Review 34 (12) 42-44 (1972) [En]

The range of specialities produced in this plant includes yoghurt (in 9 flavours), cultured cream, dips, UHT whipping cream, half-and-half and coffee whitener, and whipping cream in aerosol cans. The packaging machines used in the sterile operation are a Formseal machine for 0.5 oz cups for restaurant use and a Pure-Pak machine for qt, pints and 0.5 pint cartons. H₂O₂ and sterile air are used to provide sterile conditions during the packaging of UHT products. FL

5 T 230

Imitation butter flavour scores high for multiple applications.

Cook, M.

Candy and Snack Industry 137 (11) 36 (1972) [En]

A product known as '93 Score Imitation Butter Flavour No. 2351' has been developed by Rhodia, New Brunswick, New Jersey. It is heat stable, and captures the taste and aroma of fresh top quality butter. 1/6 fl oz (about 5 cm³) will impart optimal flavouring to 100 lb of cooking oils or other shortening. In prepared foods it is effective at 1/20 fl oz per cwt. It is stable at elevated temp. and promises improved shelf life to fats, oils, baked products, candies etc. Typical applications illustrated are: peanut brittle, french butter cream filling, butter vanilla cookie filling and butter vanilla icing. VJG

6 G 286

Synthetic and artificial food.

Pyke, M.

Institute of Meat Bulletin No. 79, 2-4, 6-17 (1973) [38 ref. En]

A more detailed account is given of products previously listed in FSTA (1973) 5 4G214. AA

6 P 795

[Method for the manufacture of food products having a blue-veined cheese flavour.]

Ney, K. H.; Wirotama, I. P. G.; Freytag, W. G. (Unilever NV)

Netherlands Patent Application 7 204 791 (1972) [NI]

Oct-1-en-3-ol, when used as an ingredient in blue-veined cheese flavour compositions, e.g. for processed cheese, cheese spread or cheese sauce, in an amount of preferably 5-50 mg/kg of the final product, masks the slightly chemical character of generally used flavouring compositions of this kind. A racemate of oct-1-en-3-ol is preferably used for economic reasons and without impairing the quality of the product. A blue-veined cheese flavouring composition contains preferably 1-8 parts oct-1-en-3-ol, 15-30 parts 2-alkanones (C₅₋₁₅) and 40-60 parts alkanolic acid (C₂₋₁₂), and may also contain other, known cheese flavouring ingredients. A further improvement is achieved by adding 200-300 mg succinic acid/kg food product. A more pronounced blue-veined cheese flavour is obtained by adding amino acids or their salts (preferably glutamic acid, lysine and methionine). W&Co

7 P 949

Process for preparing fat-containing powdered milk or milk substitute product.

Morinaga Milk Industry Co. Ltd. (Japan)

British Patent 1 307 666 (1973) [En]

The process comprises blending dried milk, cream, or a dried milk substitute with dry mixture of lecithin and sugar obtained by grinding sugar (α -lactose, glucose or sucrose) and lecithin. The final product contains 0.2-1.5% lecithin and is claimed to be readily soluble in cold water. FL

7 P 974

What now, brown cow?

Horn, H. E.; Godzicki, M. M.

Cereal Science Today 17 (5) 135-137 (1972) [En] [CPC International, Argo, Illinois 60501, USA]

Research into imitation cheeses is discussed, and development of a Cheddar prototype outlined. It is pointed out that the method has been extended to prototypes of other cheeses and imitation dairy products. The nutritional value of the imitation cheeses is considered to be not significantly different from that of milk products. DMK

7 U 433

Whey cheese - determination of fat content (reference method).

International Organization for Standardization
International Standard ISO 1854-1972 (E), 3pp. (1972) [En]

See FSTA (1972) 4 6U364.

8 P 1204

[Powdered cream compositions.]

Meiji Milk Products Co. Ltd.

Japanese Patent 48-04542 (1973) [Ja]

Pasteurized cream concentrates or homogenates are mixed with a phosphate or carbonate-phosphate buffer and spray-dried to yield non-feathering coffee whitener compositions. IFT

8 U 492

[National Food Administration's pronouncement on cheese, margarine cheese and whey products.]

Sweden, Statens livsmedelsverk

Samling av Författningar, Cirkulär m.m., Statens Livsmedelsverk SLV 23, 3pp. (1972) [Sv]

The following are defined: cheese, processed cheese, "margarine cheese" (containing non-milk fat), whey products (whey cheese or butter), mixed whey products (containing >12% DM goats' whey or milk), and whey cream cheese and butter (gräddmessmör), which must contain $\geq 10\%$ DM milk fat. Cheese and "margarine cheese" must, with certain exceptions, not contain more than 60% water. Processed cheese must during manufacture be heated to at least $+70^\circ\text{C}$ for 30 sec or an equivalent temp./time combination. Various labelling requirements are specified. ADL

9 G 437

[Poached bean curd.]

Kawahara, M.

Japanese Patent 4807345 (1973) [Ja]

In a process for the preparation of poached bean curd, bean cake is treated with amylase to produce dextrin or sugars, thereby minimizing starch degradation upon storage. IFT

9 G 445

Methionine supplementation of soy milk to correct cystine loss resulting from an alkaline soaking procedure.

Badenhop, A. F.; Hackler, L. R.

Journal of Food Science 38 (3) 471-473 (1973) [15 ref. En] [Cornell Univ., New York St. Agric. Expt. Sta., Geneva, 14456, USA]

A study was conducted to evaluate use of methionine supplementation for improving nutritive value of alkaline-extracted soy milk. Samples of soy milk of 4 different pHs were prepared by soaking soybeans in water and in 3 concn. of NaOH; half of each sample was heat-processed for 10 min at 121°C . Amino acid analyses showed cystine was the only amino acid which decreased with pH in both unprocessed and processed samples (15 and 25%, respectively, at pH 8.97) while tryptophan decreased 14% at pH 8.97 in only heat-processed soy milk. Animal feeding studies using the soy milk as protein source indicated supplementation with 0.35% L-methionine improved nutritive value in both heat-processed and nonprocessed samples. The protein efficiency ratio of nonprocessed samples was improved

approx. 50% at each pH, and in heat-processed samples 28, 32, 27 and 92%, respectively, at pH 6.50, 7.21, 7.81 and 8.97. In no case was methionine supplementation alone found as effective as a combination of heat processing and methionine supplementation for improving the nutritive value of soy milk. IFT

9 J 1361

Aqueous processing of fresh coconuts for recovery of oil and coconut skim milk.

Hagenmaier, R.; Cater, C. M.; Mattil, K. F.

Journal of Food Science 38 (3) 516-518 (1973) [8 ref. En] [Food Protein R & D Center, Texas A&M Univ., College Station, 77843, USA]

Fresh, husked coconuts were shelled, the meats ground with coconut water and the mixture pressed to separate the solids (residue) from the liquid emulsion. The liquid emulsion was centrifuged to give 3 phases: a precipitate (insoluble protein), an aqueous phase and a creamy emulsion. The creamy emulsion was diluted with oil and agitated to produce coconut oil and more aqueous phase. The combined aqueous phases (coconut skim milk) were dried to give a product that contains 25% crude protein, 5.1% fat, 45% soluble carbohydrates, 9% ash and 0.0% crude fibre. The cost of production of dry skim milk fraction is estimated to be \$0.16/lb. IFT

9 P 1285

Imitation sour cream.

Calvert, P. B. (Roberts Dairy Co.)

United States Patent 3 729 322 (1973) [En]

Imitation sour cream compositions having good freeze-thaw stability and containing a unique combination of hydrophilic colloids incorporate cross-linked amioca starch, low methoxy pectin and hydroxypropyl methylcellulose. IFT

9 P 1342

Preparation of Bleu cheese flavoured product.

Luksas, A. J. (Beatrice Food Co.)

United States Patent 3 720 520 (1973) [En]

In a typical example of the process, a blue cheese flavour preparation is obtained by growing *Penicillium roqueforti* aerobically, with agitation and aeration, in an aqueous medium consisting of water, 10% sodium caseinate and 5% butterfat, at 25°C for 48 h. It is claimed that a strong aged blue cheese (Roquefort) flavour develops by that time. EJM

9 P 1359

PAG Guideline (No. 13) for the preparation of milk substitutes of vegetable origin and toned milk containing vegetable protein.

Protein Advisory Group

PAG Bulletin 3 (1) 14-18 (1973) [10 ref. En]

Suggested methods are described for the preparation of vegetable toned milk and milk substitutes from soya beans and peanuts including recommendations for the quality of raw materials.

supplementation with minerals, vitamins and limiting amino acids, physical and bacteriological characteristics of the final product and the type of plant and equipment to be used. Values are presented for recommended chemical composition for fluid sterilized and dried milk and it is suggested that trypsin inhibitor present in the ingredients be inactivated by heating. SPT

9 T 442

Cheese flavour.

Kasik, R. L. (Beatrice Food Co.)

United States Patent 3 729 326 (1973) [En]

A cheese flavour is produced by growing an *Acetobacter* organism and a lactic acid-producing *Streptococcus* organism in a fluid medium containing a protein and carbohydrate. IFT

10 G 486

Some rheological properties of whipped toppings.

Tanaka, M.; DeMan, J. M.; Voisey, P. W.

Chemie Mikrobiologie Technologie der

Lebensmittel 2 (1) 1-6 (1973) [8 ref. En, de, fr] [Dept. of Food Sci., Univ. of Guelph, Ontario, Canada]

3 brands of whipping cream substitute were studied using a standard food mixer modified by the addition of a torque recording device. The torque increased during whipping to a maximum, but then dropped only slowly, unlike the behaviour of natural cream. There was no correlation between the behaviour observed with 2 different types of stirrer, a paddle and a wire stirrer. Although there were differences between the 3 brands in the time to reach max. torque, the final values were similar. The times were not appreciably affected by variation in the temp. within the range 10-20°C. Apparent viscosities for the whipped products were obtained by calibrating the mixer with a Newtonian oil, and it was shown that a power law relation between the viscosities and the rate of shear existed. The exponent was independent of temp., but the apparent viscosity followed Arrhenius' law, from which activation energies were calculated.

JHP

10 G 518

Production of dairy products.

Winson, A.; Hampson, E. J. (Arkady New Foods Ltd.)

British Patent 1 314 870 (1973) [En]

A method for producing a milk substitute involves heating a mixture of ground soybeans, sugar and water, removing insoluble materials (e.g. by centrifugation), boiling the product to coagulate the proteins and homogenization with the addition of a stabilizer, e.g. glyceryl monostearate. About 10-30% of the mixture is then combined with

hydrogenated palm kernel oil, stabilizer and lecithin to form 'cream', which is then recombined with the remainder of the mixture and rehomogenized. The product has pH of about 7.5 and is said to resemble milk in taste, appearance etc. FL

10 P 1442

Non-dairy cheese - a unique reality.

Vernon, H. R.

Food Product Development 6 (5) 22, 24, 26

(1972) [En] [Ind. Product Services, Anderson Clayton Foods, Dallas, Texas, USA]

2 products marketed under the name Unique Loaf are in commercial production and available for use as natural cheese replacements for 2 cheese types: a mild Cheddar or processed American flavoured and a Mozzarella flavoured. The flavour chemist has found it very difficult to duplicate the exact flavour of 'typical' Mozzarella cheese because of the wide variation in natural Mozzarella flavour. To retain the unique flavour characteristics each user of Mozzarella (mainly pizza producers) is advised to use a blend of the replacement cheese with the natural cheese. The Cheddar flavoured cheese is intended for use as a replacement for natural cheese in uses with other foods. Both products are prepared from sodium and calcium caseinates, hydrogenated vegetable oils, artificial flavours, minerals, vitamins and amino acids. Comparative analyses of the non-dairy products and natural Mozzarella and processed American cheese are presented in tabular form. The non-dairy products are claimed to have the following advantages: positive flavour control; product consistency (firmness); improved handling in food manufacture; excellent keeping qualities; storage and handling as for natural cheese, cost reduction compared to natural cheese; nutritional equivalent of natural cheese; and reliability of supply of raw materials. VJG

10 P 1464

[Process for producing imitation human milk.]

Verfahren zur Herstellung simulierter Frauenmilch. Grütte, F. K.; Schulze, J.; Hampel, H. G. (German Democratic Republic, Deutsche Akademie der Wissenschaften zu Berlin)

German Federal Republic Patent Application 2 233 551 (1973) [De]

Infant feeding formulae are produced by removing anions of weak acids, e.g. phosphate, citrate or acetate, from a liquid such as whey, and mixing the whey with fats, vitamins, minerals and proteins; the latter are obtained by precipitating and rinsing a protein-containing liquid such as cows' skim-milk in water in a ratio of e.g. 1 : 1, and adjusting the pH to 4.4 - 5.1 with acid. The mixture is homogenized, and 6-8% lactose and optionally additional nutrient substances, particularly more carbohydrates, are added. The product gives the same microbiological effects as human milk, and helps to protect against intestinal microbial attack. W&Co

11 G 537

Soybean cheese.

Lunstedt, E.; Yau-Yee Lo, F. (Hong Kong Soya Bean Products Co. Ltd.)

United States Patent 3 743 515 (1973) [En]

A blue cheese-like product with the same flavour, taste, and blue veins as Roquefort cheese, is made from a soybean curd which is prepared from soybean milk fortified with butterfat and milk SNF, by inoculation with *Penicillium roqueforti* and preferably also *Streptococcus diacetylactis*. IFT

11 G 538

Soybean cheese.

Lunstedt, E.; Yau-Yee Lo, F. (Hong Kong Soya Bean Products Co. Ltd.)

United States Patent 3 743 516 (1973) [En]

A new curd from soybean milk which is heat-stable and suitable for the preparation of a meltable cheese by the hot-pack process, is prepared by adding 1-10% fat and 0.5-5.0% skim-milk solids to soybean milk, pasteurizing, homogenizing, forming a curd, preferably by use of lactic acid bacteria, at <120°F, heating to 140-170°F, and draining until the moisture content of the curd is between 60 and 80%. IFT

11 H 1756

Spray-drying apparatus.

Nezbed, R. L.; Zamzow, W. H. (Kraftco Corp.)

United States Patent 3 738 412 (1973) [En]

In a spray-drying apparatus for preparing coffee whiteners, air is circulated through a drying chamber to form a fraction of dried particles which may be separated to provide a first fraction having a relatively high bulk density. This fraction is subsequently mixed with a second fraction which is removed from the chamber by gravity and which has a relatively low bulk density. IFT

11 P 1589

Recombined dairy products.

Upadhyay, K. G.; Dave, J. M.; Vyas, S. H.

Indian Dairyman 25 (3) 99-104 (1973) [En]
[Dairy Sci. Coll., Anand]

Various ingredients used in the preparation of recombined dairy products and the manufacture of these products (including recombined fluid milk, cultured products, conc. milk, cheese, butter, khoa and whipped cream) are briefly discussed. CDP

11 P 1590

Effects of nonfat milk solids and stabilizers on body, texture and water retention in low-fat dairy spreads.

Spurgeon, K. R.; Seas, S. W.; Dalaly, B. K.

Food Product Development 7 (3) 34, 36, 43-44 (1973) [17 ref. En] [Dairy Sci. Dept., South Dakota St. Univ., Brookings, USA]

Low fat (40%) dairy spreads required additional protein for good water retention. Dried whey, used as a source of protein, produced a soft spread, but crystallization of the lactose resulted in poor texture. Sodium caseinate had the best water retention properties but the final product was too sticky. Dried skim-milk gave a firm spread but the most acceptable body. A mixture of CMC and gelatine proved to be the most satisfactory stabilizer. All the products softened appreciably during storage. JMP

11 P 1689

[Production of creamy/pasty dairy products from protein-enriched whole or skim-milk.] Verfahren und Vorrichtung zum Herstellen von cremigpastösen Milchprodukten aus eiweissangereicherter Voll- oder Magermilch. Körner, H. (Milifoma Gesellschaft zur Förderung des Absatzes Milchwirtschaftlicher Produkte mbH) **German Federal Republic Patent Application** 2 122 904 (1972) [De]

Milk is pumped at approx. 4 atm absolute in a cycle through a cellulose nitrate membrane of pore diam. approx. 8 μ which is permeable to all milk constituents except protein. On the output side of the membrane, partial pressure of air is provided and clean water is circulated, while the input side is flushed with clean water one or more times or continuously. The resulting protein concentrate, which is completely undenatured, may be dried to a powder which readily dissolves in water, or is coagulated with lactic acid bacteria. The final product may consist of approx. 16% protein and approx. 3% lactose for a firmer consistency, or approx. 9% protein for a more creamy consistency, or approx. 9% protein and approx. 2% lactose for a solid, stodgy consistency, or approx. 85-87% protein, 9-11% sugar and approx. 4.5% cocoa for a chocolate-flavoured product. The product is packaged approx. 45 min after adding bacteria, then incubated in the containers at approx. 43°C for final coagulation. Optionally the product may be dried to a powder. The product has a high pH (approx. 6.5), requires no stabilizers or further treatment after coagulation, has a smooth consistency, and may be made into food-stuffs having a wide range of properties. W&Co

11 U 775

Preparation of a high protein simulated cheese product.

Burkwall, M. P. (Quaker Oats Co.)

United States Patent 3 741 774 (1973) [En]

In a preferred embodiment a mixture consisting of 5 parts of cheese, 18 parts of sugar, 16 parts of pregelatinized tapioca starch, 23 parts of high protein binding agent (50% protein soyafLOUR, sodium caseinate and dried whey), 0.3 parts potassium sorbate and 28 parts of water, was placed in an extruder in which it was heated to approx. 150°F and the heated mixture extruded into small strands. The product is claimed to be very palatable and to possess a long shelf life at room temp. EJM

12 A 568

An immobilized α -galactosidase flow reactor.

Reynolds, J. H.

Abstracts of Papers, American Chemical Society

166, MICR 10 (1973) [En] [Monsanto Co., 800

N. Lindbergh Boulevard, St. Louis, Missouri

63166, USA]

A thermostable α -galactosidase with a pH optimum of 7.0 which hydrolyses p-nitrophenyl- α -D-galactopyranoside and the oligosaccharides melibiose, raffinose, and stachyose has been immobilized on nylon microfibrils. This catalyst system is suitable for use in large flow-through reactors and is stable for many months both under use and storage conditions. The enzyme is crosslinked onto the nylon surface using dimethyl adipimidate at pH 8.5. Yield and retention of enzyme activity are 95% with about 10 mg of protein/g of nylon. The immobilized enzyme behaves similarly to the enzyme in solution, characteristically exhibiting thermostability and both product and substrate inhibition. The catalyst is prepared in the reactor tube by recycling appropriate solutions through a tube of glass, plastics or stainless steel prepaced with nylon. Analytical results were obtained with small 70 ml reactors containing about 6 g of catalyst. A large reactor containing 500 g of catalyst was made and found to operate in a manner similar to the small reactor. The catalyst has been used to reduce oligosaccharides in diluted beet sugar molasses (raffinose) and soybean milks (stachyose). AS

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First published in 1975

1

[Artificial creams.]

Pellegrini, E. A.

Revista de Medicina Veterinaria (Buenos Aires) 54 (2) 105-123 (1973) [13 ref. Es, en] [Fac. de Ciencias Vet., Univ. de Buenos Aires, Argentina]

Under Argentinian food regulations, artificial creams must contain 25-60% total fat (but not more than 55% milk fat); milk, dried milk, refined sugar, glucose and/or lactose, permitted additives, etc., may be used in their manufacture. The author describes a process for the manufacture of such creams from dried skim-milk, hydrogenated fat, pasteurized butter, lecithin, glyceryl monostearate, sorbic acid and flavourings. Analysis of 214 artificial cream samples from an Argentinian manufacturer showed the following range of chemical composition (%): water, 44.25-50.05; fat, 25.20-29.15; sugars (lactose and sucrose), 17.30-21.99; protein, 2.01-6.14; ash, 0.10-0.75. The pH ranged from 5.0 to 6.5. ADK

2

[Method of obtaining a whole milk substitute.]

Shamgin, V. K.; Shegeglov, V. V.; Miziakina, A. M.; Bulikov, S. I.; Sheinina, S. S. (Union of Soviet Socialist Republics, Belorusskii Filial Vsesoyuznogo Nauchno-issledovatel'skogo Instituta Molochnoi Promyshlennosti; Union of Soviet Socialist Republics, Belorusskii Nauchno-issledovatel'skii Institut Zhivotnovodstva)

USSR Patent 377 153 (1973) [Ru]

A milk substitute is obtained by emulsifying a mixture of fats, mixing this with a concentrated liquid milk mixture, and drying. The milk mixture contains unseparated cheese whey. W&Co

3

Powdered whippable toppings.

General Foods Ltd.

British Patent 1 326 899 (1973) [En]

A free-flowing powdered topping which forms a whippable mixture when mixed with milk, comprises a dried emulsion containing fat, protein, carbohydrate, a primary emulsifier and a secondary emulsifier to improve the taste and organoleptic properties. IFT

4

Cheese-like flavors.

Kraftco Corp.

British Patent 1 326 516 (1973) [En]

Mixtures of cheese protein sources and triglyceride fats are heated to inactivate lipolytic enzymes and incubated with an esterase to develop a cheese-like flavour. IFT

1

5

Meat and cheese flavors.

Katz, I.; Evers, W. J.; Pittet, A. O.; Wilson, R. A. (International Flavors & Fragrances Inc.)

Canadian Patent 933 170 (1973) [En]

Meat and cheese flavours are obtained by reacting conjugated oxygen-containing carbonyl compounds such as hydroxyfuranones with H_2S . IFT

6

[Synthetic meat product.]

Snow Brand Milk Products Co. Ltd.

Japanese Patent 4 828 664 (1973) [Ja]

An alkaline solution of soybean protein or milk casein is mixed with egg white and aged for up to 3 days to yield a composition having a viscosity of approx. 7000 cP. This composition is then extruded into an aqueous acid bath to yield a solidified protein which is neutralized, pre-dried at 75-85°C and heated at 70-110°C to reduce its water content to <10%. IFT

7

Nutritional studies on soybean curd produced by calcium sulfate precipitation of soybean milk.

Schroder, D. J.; Elliot, J. I.; Jackson, H.

Journal of Food Science 38 (6) 1091-1092 (1973) [13 ref. En] [Dept. of Food Sci., Univ. of Alberta, Edmonton, Canada]

In view of the considerable variation in nutritive value that can result from processing, an evaluation was made of the soybean curd produced by calcium sulphate precipitation of heated soybean milk. Rats were fed a control diet containing casein as the sole source of protein and a test diet containing soybean curd as the sole source of protein. With either diet, males consumed more feed, gained weight faster and were more efficient than females. All differences attributable to sex were significant ($P < 0.05$). The test diet meets all amino acid requirements for rats except methionine; however, the cost of supplementation with methionine would be very small. IFT

8

[Modification and imitation of dairy products.]

Verhoog, J. H.

Voedingsmiddelentechnologie 3 (36) 19-23

(1972) [26 ref. Nl] [Coöperative Condensfabriek 'Friesland', Leeuwarden, Netherlands]

The author gives examples of the modification of milk products for dietetic reasons (e.g. lactase-treated milk for persons with lactose intolerance) or for the improvement of product properties (e.g. transesterification of milk fat to improve the spreadability of butter at low temp.), as well as of products in which milk fat and/or SNF are replaced by non-milk substances (filled evaporated and condensed milks, Bregott, Butterine, coffee whiteners etc.). ADL

9

[Detection of soya bean milk in bovine milk by gel-electrophoresis.]

Kim, Y. J.; Park, J. L.

Korean Journal of Animal Science 13 (3) 222-224 (1971) [9 ref. Ko, en] [Livestock Expt. Sta., Suwon]

Milk protein was compared with that of soya bean milk by polyacrylamide gel electrophoresis (pH 8.6, Tris buffer). Cows' milk has 6 protein bands, and soya bean milk 9 bands. Electrophoretic mobility of the prominent globulin of soya bean milk is higher than α -casein, but lower than γ -casein. In the mixed milk, a protein band can be seen which has a higher mobility than α -casein, but lower than γ -casein, even with 2% soya bean milk in cows' milk. KoSFoST

10

[Detection of soya bean milk in bovine milk by gel electrophoresis.]

Kim, Y. J.; Park, J. L.

Research Reports of the Office of Rural Development, Livestock 15, 79-82 (1973) [16 ref. Ko, en]

See preceding abstr.

11

Unique ingredient base creates imitations.

Anon.

Food Processing 34 (10) 22 (1973) [En]

Details are given of a product which may be used to formulate imitation cheese products and meat analogues. The powdered blend contains 35% protein, a lipid blend constituting 52%, 6.5% carbohydrates, and 6.5% ash (emulsifiers). The cost of the formulated ingredient is competitive with regular cheese products. AA

12

Separation of nitrogenous residues from deproteinated whey for lactose crystallization.

Jelen, P.; Manning, P. B.; Coulter, S. T.

Journal of Dairy Science 56 (12) 1492-1497 (1973) [14 ref. En] [Dept. of Food Sci. & Nutr., Univ. of Minnesota, St. Paul, 55101, USA]

The influence of heat treatment, pH adjustment, and TS content on the effectiveness of secondary protein removal (clarification) from heat/acid deproteinated whey was studied. Lowering pH [from 5.0 to 3.5] and increasing TS content [from 46 to 55%] before clarification decreased residual protein ($N \times 6.38$) in clarified whey. Lowest N was obtained by concentrating deproteinated whey to 55% TS, adjusting pH to 3.5, heating to 90°C, and filtering. Thread-like aggregates formed during concentration of the heat/acid deproteinated whey at pH 4.5 in a rotary film evaporator. Analytical

studies indicated that the aggregates were composed predominantly of proteose-peptone component 5. AS

13

The nature of fats and fatty components in nondairy imitation milks.

Filsoof, M.; Mehran, M.; Kosikowski, F. V.

Journal of Food Science 38 (6) 945-948 (1973) [8 ref. En] [Dept. of Food Sci., Cornell Univ., Ithaca, New York 14850, USA]

The fat was extracted from 14 imitation whole milk powders (IWMP) and from 3 samples of dried whole milk. Characteristics of the fats (mp, refractive index, unsaponifiable matter, sterol content and fatty acid (FA) composition) were compared. The cows' milk samples contained cholesterol and related sterols, whereas the IWMP contained mainly campesterol, stigmasterol and β -sitosterol. Unsaturated FA accounted for 60-80% of the total FA in IWMP. Flavour defects in IWMP products could be attributed to the unsaturated nature of the fat. Some IWMP were stable over a period of 18-24 months at 18°C and appeared to contain inhibitors of oxidation. [See also FSTA (1972) 4 3P436.] MEG

14

Use of creamy substitute permits easy retorting.

Anon.

Food Processing 34 (11) 24 (1973) [En]

The development of a selection of canned meats in sauce is discussed with special reference to the preparation of a sauce to accompany poultry dishes. The selection of a liquid cream substitute that does not contain reducing sugars permits a rich, white smooth sauce to be produced. Use of a specialized starch system helps to hold retort time down, while thickening the sauce without making it pasty. The sauce tolerates steam-table heating, baking, and refrigeration temp. well, and supplies rich flavour without overpowering the delicate flavour of turkey or chicken. AA

15

Soy protein products in other foods.

Levinson, A. A.; Lemancik, J. F.

Journal of the American Oil Chemists' Society 51 (1) 135A-137A (1974) [En] [Nat. Protein Corp., Chicago, Illinois, USA]

Consideration is given to the value and properties of soy proteins in dairy-type foods, simulated dairy products and margarine and to the functional properties of soy proteins in baked goods i.e. bread, cake mixes, pancakes, waffles, doughnut flour mixes and cookies. Nutritional contribution of soy protein is discussed with reference to its incorporation in breakfast cereals, baby foods, soy beverages, snack foods, confectionery, pasta products and as bases for artificial spice flavourings. VJG

16

Soy products in other applications.

Claus, W. S.

Journal of the American Oil Chemists' Society 51

(1) 191A-198A (1974) [En] [Res. Lab.,
Carnation Co., Van Nuys, California, USA]

The use of soy products in whip toppings, coffee whiteners and nutritional beverages is briefly discussed. VJG

17

Soy proteins in dairy-type foods, beverages, confectionists, dietary, and other foods.

Circle, S. J.

Journal of the American Oil Chemists' Society 51

(1) 170A-199A (1974) [En] [Anderson Clayton Foods, Richardson, Texas, USA]

Preparation and properties of the following soy-based product groups are given: beverages (soy milk, yoghurt-like milks, simulated milks, still beverages, carbonated beverages); simulated sweet and sour creams; margarine and spreads; cheese-like foods (fermented and unfermented, simulated cream cheese, simulated cured and processed cheese, cheese spreads and dips); frozen desserts, ice cream and sherbet; whipped toppings; substitute nuts and fruits; table vegetables; and soups. VJG

18

[Identification of adulterated milk by the freezing point.]

Huh, K. C.

Korean Journal of Animal Science 13 (2) 159-163 (1971) [16 ref. Ko, en] [Junior Coll. of Agric., Ansong, S. Korea]

An experiment was performed to study the fp and sp. gr. of milk mixed with 2-10% water, brine and soya bean milk. It was found that 1% of water added decreased fp 0.0055°C on average, decreased sp. gr. 0.00034; 2% of added brine reduced the fp by 0.054°C on average. 1% of soya bean milk increased fp by as much as 0.003°C. KOSTOF

19

[Soybean milk.] [Review]

Banu, C.; Nadelcu, N.

Industria Alimentara 23 (9) 495-498 (1972) [7 ref. Ro, en, fr, de, ru] [Inst. Politehnic, Galati, Romania]

This review deals mainly with several commercial methods of preparation of soybean milk and with the composition of the milks produced. Diagrams of seven production lines and procedures are included. SKK

20

[Synthetic cream concentrate, and method for its manufacture.]

Penning, H. J.; Herendi, N. (Unilever NV)

Netherlands Patent Application 7 308 331 (1973) [Nl]

A concentrate for the preparation of a synthetic whippable cream contains 35-50% by wt. of a fat having a dilatation value of ≥ 200 at 20°C, 0.1-1.5% by wt. α -monoglycerides (preferably saturated) and 1-6% by wt. egg yolk. The concentrate may also contain in an aqueous phase $\geq 5\%$ sugar, 5-15% polyalcohols (preferably 8-12% sorbitol, the total sugar and polyalcohols being ≥ 1.75 mol/kg aqueous phase), 6% vegetable phosphatides (preferably hydrolysed), 6% egg white and $\leq 1.0\%$ stabilizer. The concentrate is prepared by emulsifying a mixture of fat, monoglycerides, egg yolk and the aqueous phase at a temp. above the mp of the fat, with subsequent homogenizing, pasteurizing, cooling, homogenizing plus cooling, and aseptic packaging of the resultant emulsion. The product remains pourable for at least several weeks, and during this time is microbiologically stable even when stored at room temp. A whippable synthetic cream is obtained by diluting with milk, preferably to a fat content of 25-35%. W&Co

21

Utilization of cottonseed whey protein concentrates produced by ultrafiltration.

Lawhon, J. T.; Lin, S. H. C.; Rooney, L. W.; Cater, C. M.; Mattil, K. F.

Journal of Food Science 39 (1) 183-187 (1974)

[14 ref. En] [Food Protein R & D Center, Texas A&M Univ., College Station, 77843, USA]

Whey-type liquid by-products from the manufacture of protein isolates from glandless cottonseed flour were processed with semipermeable ultrafiltration (UF) membranes to fractionate and concentrate whey constituents before spray drying. 3 different cottonseed wheys resulting from 2 isolation procedures were processed. The 3 spray-dried protein products obtained were evaluated for potential use in protein fortification of breads or noncarbonated beverages, and also as whipping products. Separation of carbohydrates and salts (though incomplete) from protein by the UF membrane yielded light cream coloured protein-rich products greatly enhanced in whippability and in their utility for beverage fortification over that of unfractionated whey solids. Membrane fractionation significantly increased most of the essential amino acids. Available lysine in the products was increased by $> 50\%$ of the available lysine of the original flour. IFT

22

Composition and characteristics of glandless and liquid cyclone process deglanded cottonseed wheys. Lin, S. H. C.; Lawhon, J. T.; Cater, C. M.; Mattil, K. F.

Journal of Food Science 39 (1) 178-182 (1974) [29 ref. En] [Food Protein R&D Center, Texas A&M Univ., College Station, 77843, USA]

Cottonseed wheys are liquid by-products from cottonseed protein isolation processes. These wheys when prepared in the laboratory contained 22-36% of the original flour solids or 12-23% of the flour N. Differences among various wheys from different processes were clearly indicated by their chemical compositions and gel filtration chromatograms. Whey proteins were water soluble, heat stable and contained up to 7% lysine and 5% cystine. Whey carbohydrates were mainly raffinose and sucrose. Minerals and vitamins in cottonseed wheys were also shown for comparison. Recovery of the utilizable whey constituents to minimize disposal problem is emphasized. IFT

23

Abstracts of papers presented at Second Annual Research Conference (Cork, September 19 and 20, 1972) on Food Science and Technology.

Irish Republic, An Foras Taluntais

Irish Journal of Agricultural Research 12,

Supplement i-xxv (1973) [En]

Papers presented at the Conference included: Differential thermal analysis of fats, by B. Casey & M. F. Murphy (p. ii); Copper contamination and off-flavour development in dairy products, by J. M. O'Connell & W. K. Downey (pp. ii-iii); Computer applications in dilatometry, by M. F. Murphy & J. P. Brady (pp. iii-iv); Possibilities of producing spreadable butter by fractionation, by J. P. Brady & M. F. Murphy (p. iv); Studies on a low-fat spread, by M. F. O'Brien, J. P. Donnellan & J. A. Phelan (p. v); Effects of system of production on the fatty-acid composition and melting point of lamb fat, by T. Mulvihill & J. L. L'Estrange (pp. v-vi, 1 ref.); A condition of soft-discoloured fat in lambs, by J. L. L'Estrange (p. vii, 1 ref.); Dietary influences on lamb fat composition, by M. J. Gibney & J. L. L'Estrange (pp. vii-viii, 2 ref.); Factors affecting the bacteriological qualities of water-cooled milk delivered or collected daily, by M. Fleming (p. ix); Casein micelle structure: susceptibility of various casein systems to proteolysis, by J. Guiney & P. F. Fox (p. xi); The sialic acid content of the milk of various species, by P. A. Morrissey (pp. xiii-xiv); The direct use of starch in single cell protein production, by M. J. Clancy (p. xiv); Protein isolates from *Chlorella* algae, *Terula* yeasts and other microbial cells, by R. A. M. Delancy (p. xiv);

CDP

24

Dehydrated coconut skim milk as a food product: composition and functionality.

Hagenmaier, R.; Mattil, K. F.; Cater, C. M.

Journal of Food Science 39 (1) 196-199 (1974)

[11 ref. En] [Food Protein Res. & Development Center, Texas A&M Univ., College Station, 77843, USA]

The mineral analysis of dehydrated coconut skim milk indicates the presence of more K and less Ca than is found in cows' milk. The amino acid analysis suggests that isoleucine and methionine are the limiting amino acids. Other data indicate that coconut skim milk has good solubility above pH 6.0, but low solubility at pH 3.0-6.0. The product is not easily heat coagulated at pH higher than 1.0. A 12% solution of coconut skim milk is an acceptable beverage. Dried coconut skim milk is very hygroscopic. IFT

25

[Soy bean curd.]

Yamada, T.; Koizumi, K.

Japanese Patent 4 844 867 (1973) [Ja]

Boiled bean milk at approx. 90°C is mixed with rice oil and safflower oil with the addition of glucono- Δ -lactone as a dispersing agent. The composition coagulates on standing. IFT

26

[Whipping cream.]

Snow Brand Milk Products Co. Ltd.

Japanese Patent 4 843 630 (1973) [Ja]

Low fat shipping cream compositions contain microcrystalline cellulose, alginic acid derivatives and sucrose fatty acid ester. IFT

27

[Making cows' milk proteins similar to those of human milk. Technological possibilities.]

Angeleichung des Kuhmilcheiweisses an das Eiweiss der Frauenmilch.

Solms-Baruth, H. Graf zu

Ernährungs-Umschau 20 (11) 446-448 (1973) [4 ref. De. en] [Lebensmittel-Forschungs- und Untersuchungs-Gesellschaft mbH, Hamburg, Federal Republic of Germany]

This lecture presented at the meeting of the German Dairy Science Association in Munich in April 1973 deals with problems of adaptation of cows' milk protein components, and with technological possibilities of using desalted dried whey, lactalbumin concentrate, whey lactose and suitable sources of casein to adapt cow's milk milk substitutes. Examples of recipes for infant formulae are quoted. S&K

28

[Method for producing a milk-based spread.]

Unilever NV

Netherlands Patent Application 6 911 362 (1970) [Nl]

An aqueous dispersion of milk protein and lactose is incubated at $\leq 55^{\circ}\text{C}$ with *Lactobacillus bulgaricus* and *Streptococcus thermophilus* until a pH of 4.8-5.4 is reached. Fat is added, and the resultant aqueous emulsion is cooled and processed to give a coherent plastic mass at room temp. HBr

29

[Method of manufacturing synthetic milk.]

Giddey, C.; Dove, G. (Switzerland, Battelle Memorial Institute)

Swiss Patent 532 901 (1973) [Fr]

Casein-based synthetic milk is produced by dissolving 3-8% by wt. casein, which has been obtained by precipitation in an acid medium, in an aqueous basic solution containing ions of at least one alkali metal, e.g. sodium hydroxide or potassium hydroxide, at least one of the carbohydrates sugars and starches, and milk serum acting as solvent. The resulting solution has a pH 5.5-7.2, which is then raised to 7.5-9.0 by adding a mixture of calcium hydroxide and calcium chloride, and finally reduced to 5.6-6.7 by adding an aqueous solution of phosphoric acid. All stages are carried out at $0-60^{\circ}\text{C}$. The synthetic milk has a composition very similar to that of natural milk, and may be processed with similar results. W Co

30

Considerations for choosing the right plant protein. Mattil, K. F.

Food Product Development 7 (6) 40, 42, 44 (1973) [En] [Food Protein Res. & Development Center, Texas A&M Univ., College Station, USA]

Some alternatives to soybean products as protein sources are considered, with particular reference to their rate of commercialization. Alternatives considered are: peanut flour (approx. 57% protein, already marketed); degossypolized cottonseed protein concentrate (approx. 65% protein, produced by the liquid cyclone process); coconut products (25-30% protein, past the technological feasibility stage of development); proteins from petroleum; and fish protein concentrate. Use of these low cost protein materials in meats, for fortifying beverages, simulating milk, as whipping aids, and in composite flours for bread baking, is considered. VJG

31

Formulation of a milk substitute based on vegetable protein.

Pompei, C.; Bazzoni, D.

Latte Feb., 540-543 (1974) [15 ref. It] [Istituto di Tecnologie Alimentari, Univ. di Milano, Italy]

The 3 basic ingredients used in this milk substitute (with DM and total protein values in g/100 g respectively), are as follows: soya protein, ultrafiltered and dialysed (6.45 and 5.95); conc. ultrafiltrate from Grana cheese manufacture (16.29 and 0.77); sunflower and coconut palm oil (99.9 and 0). A diagram illustrates the production process. Tables on the composition of the product (liquid and spray-dried) are given and compared with FAO-OMS standards and with corresponding values for cows' milk. The advantages of this product are discussed including its high linoleic content. MC

32

[Industrial production of some soya-bean protein derivatives.]

Ionescu, I.; Boerescu, D.; Manguileu, P.; Lefter, D. *Industria Alimentara* 24 (4) 209-212 (1973) [9 ref. Ro, en, fr, de] [Serviciul de Cercetari Uzinale el Centralei Ind. Laptelui, Rumania]

Experiments on production of protein concentrates from soya beans are described in detail. The procedure chosen consists in treatment of Soya grits with 0.1% NaOH solution (1:12 proportion) for 2 h at 75°C , conc. of the extract to 25% DM, spray drying, packaging in plastics or paper bags and storing at $\leq 15^{\circ}\text{C}$. The product contains 3% fat, 43% protein, 33% N-free extractives and 4% moisture. The product may be conveniently produced in dairy factories. Tests on preparation of dried soya-bean milk have not yet yielded a product of fully satisfactory organoleptic quality. SKK

33

[Technological conditions of the production and sale of modified milk.]

Hadland, G.; Bo, S.; Solberg, P.

Meieriposten 63 (1) 3-7; (2) 26-37; (3) 44-56; (4) 77-82 (1974) [Nv] [Dairy Res. Inst., Agric. Univ. of Norway, As-NLH]

Experiments were conducted at 2 liquid milk dairies in N. Norway on "modified" milk (fresh liquid milk plus $\leq 33\%$ recombined milk) as an alternative to long-distance supply of milk. Of the 2 processes used, a continuous process whereby unmelted butter and dried skim-milk were added during circulation of about half the required water at 35°C , followed by final water addition and mixing with fresh milk, was considered preferable to a batch process in which dried skim-milk was reconstituted at $5-6^{\circ}\text{C}$, with continued cool storage overnight before adding butter during warming and circulation. Sales results and consumer reactions during an experimental marketing period in 1966-67 are discussed. ADL

34

Simulated human milk.

Grutte, F.-K.; Schulze, J. (German Democratic Republic, Akademie der Wissenschaften)

British Patent 1 347 443 (1974) [En]

The product is prepared by a process involving treatment of whey in a suitable anion exchanger to remove anions of weak acids, dilution to 3 × its initial vol., addition of a protein obtained by precipitation of skim-milk at the isoelectric point (pH range 4.4-5.1 l) and of a fat mixture comprising 2 parts by wt. of sunflower oil and 1 part of cottonseed oil, and incorporation of vitamins A, B₆, riboflavin, thiamin, ascorbic acid, and nicotinamide as well as ferrous lactate. The product is then homogenized, spray-dried, and mixed with lactose and wheat starch. The addition of the ingredients is controlled to obtain a product which after reconstitution contains 1.7% protein, 3.5% fat, 6.6% lactose, 2.0% when starch and 0.3% minerals. FL

35

[Technology of food additives; effect of emulsifiers in foodstuffs.] Technologie der Zusatzstoffe in Lebensmitteln; Wirkungen von Emulgatoren in Lebensmitteln.

Anon.

Molkereitechnik No. 28, 5-22 (1974) [De]

After a brief discussion of the definitions of emulsifiers and stabilizers and emulsion types (oil-in-water and water-in-oil), the article deals with practical aspects of the use of emulsifiers in different foods, including spreadable fats, mayonnaise, sauces, baked goods, chocolate, confectionery products, instant dried products (milks, baby foods, whipped toppings and desserts, coffee whiteners etc.), puddings and ice cream.

FL

36

Lactic acid fermentation of soybean milk.

Wang, H. L.; Kraidej, L.; Hesseltine, C. W.

Journal of Milk and Food Technology 37 (2) 71-73 (1974) [8 ref. En] [N. Regional Res. Lab., USDA, Peoria, Illinois 61604, USA]

Growth rates of 8 *Lactobacillus acidophilus* strains and 4 *L. bulgaricus* strains were compared in soybean milk and soybean milk enriched with glucose, lactose, and sucrose. 4 *L. acidophilus* strains grew well in soybean milk; the remainder grew better in soybean milk supplemented with glucose or lactose. In general, soybean milk was not an adequate medium for strains of *L. bulgaricus*. Almost all these cultures, however, could adapt themselves to the environments of the media tested. A soybean milk drink fermented by *L. acidophilus* NRRL B-1910 was prepared and evaluated by a taste panel. The drink had a refreshing sweet-sour taste, and the beany flavour of soybeans was masked by the fermentation process. AS

37

Soybean milk substitute.

Peng, A. C.-Y. (Swift & Co.)

United States Patent 3 798 339 (1974) [En]

A highly nutritious milk-substitute type product is prepared by mixing soybean material with certain milk constituents or by-products, particularly whey, in a liquid mixture and then boiling and grinding the mixture to a smooth consistency. IFT

38

[Soybean cheese product.]

Snow Brand Milk Products Co. Ltd.

Japanese Patent 4 906 107 (1974) [Ja]

A synthetic cheese product having the taste and texture of natural cheese is prepared from extracted Soybean protein. IFT

39

Imitation milks and milk products. [Review]

Mann, E. J.

Dairy Industries 39 (5) 165-166 (1974) [18 ref.

En] [Commonwealth Bureau of Dairy Sci. & Tech., Shinfield, Reading, UK]

40

[Rapid gas chromatographic determination of butyric acid in milk substitutes and dried whole milk.] Rasche gaschromatographische Bestimmung von Buttersäure in Milchaustauschern und Vollmilchpulver.

Hüni, K.; Uebersax, P.

Mitteilungen aus dem Gebiete der Lebensmitteluntersuchung und Hygiene 64 (4) 524-527 (1973) [4 ref. De, en, fr] [Eidgenössische Forschungsanstalt für Agrikulturchemie und Umwelthygiene, Liebefeld-Bern, Switzerland]

Detn. of the butyric acid content of milk substitutes, used to check the presence therein of the officially prescribed min. butterfat content (4%), is greatly expedited by the use of a GLC procedure employing a column coated with 10% Reoplex on Chromosorb W and operating at 100°C. The isolated fat is hydrolysed with methanolic NaOH and esterified with BF₃/methanol, and the methyl esters applied in hexane solutions to the column. Only peaks of the esters of butyric, caprylic and caproic acids and of the internal standard used, heptanoic acid, appear at 100°C. Esters of higher acids are retained in the column and can be eluted at 220°C. GTP

41

Production of rubratoxin by *Penicillium rubrum* in soy whey fortified with malt extract.

Emeh, C. O.; Marth, E. H.

Abstracts of the Annual Meeting of the American Society for Microbiology 72, 28 (1972) [En]

[Univ. of Wisconsin, Madison, USA]

Sterile soy whey (1.75% dissolved solids) was fortified with 0.5, 1.0, 2.5, 5.0, and 10% malt extract and inoculated with spore suspensions of *P. rubrum* strains P-13, 1062, 2120, 2123, and 3290. Samples were incubated as stationary cultures at 28°C for 1, 3, 5, 7, 10, 12, 14, 17, 21, and 28 days and as shake cultures for 3, 7, and 14 days. After extraction, rubratoxins were resolved by repeated TLC and then were determined gravimetrically. Rubratoxin was not obtained in shake cultures. Toxin production in stationary cultures increased with an increase in malt extract concn. After max. production, toxin content of cultures levelled off and then decreased. The final pH varied from an initial value of 6.0 to a min. of 3.4 and a max. of 8.4. Rubratoxins A and B were recovered from whey cultures of all strains of *P. rubrum* except P-13 which produced only rubratoxin B. No toxin was recovered from samples with a final pH greater than 7.5. AS

42

[Coffee whiteners.]

Meiji Milk Products Co. Ltd.

Japanese Patent 4 911 430 (1974) [Ja]

Defatted milk protein or sodium casinate is mixed with a fat composition containing 1 fatty acid having 6-10 carbon atoms, and the mixture is homogenized with lactose, a starch hydrolysate, and an emulsifier. The composition is then sterilized, conc. and spray-dried to yield a product which may be used for whitening coffee or reconstituted for use as a liquid cream. IFT

43

[Method for the manufacture of food products containing an emulsified fat.]

Bratland, A.

Norwegian Patent Application 129 231 (1974)

[No]

A cream-like product based on a non-milk fat and skim-milk or a mixture of skim-milk (60-99% by wt.) and whole milk (40-1% by wt.) is obtained by emulsifying the fat (preferably in the heated state) with the milk, homogenizing the emulsion and centrifuging it. An emulsion having a fat content of preferably 2-4% is prepared without adding an emulsifier, and is then centrifuged to obtain a fat-rich fraction having a fat content of 10-75%. The products may be used as high quality cream substitutes (cream, coffee cream, whipping cream) or for margarine manufacture. They are suitable, e.g. for a cholesterol-reduced diet and do not contain undesirable ingredients such as emulsifiers. W&Co

44

[Reconstituted milk-type complete foods.]

Kir, K.; Maillols, M.; Bastide, P.

French Patent Application 2 124 087 (1972) [Fr]

Complete milk-like food contains: a mixture of proteins (e.g. fish autolysate, whole milk, skim-milk, yeasts or algae, degraded into essential amino acids, particularly methionine, and low mol. wt. proteins), lipids, glucides, mineral salts, vitamins and other biocatalytic substances in the form of vegetable products (e.g. extracts of carrot tops, turnips), and flavourings. The amount of lipids or glucides may be reduced or suppressed to obtain a food like skim-milk, or a diabetic food. The product is claimed to be more readily assimilable than conventional products of the same type. W&Co

45

Abstracts of papers to be presented at the Sixty-Ninth Annual Meeting. Manufacturing section.

Products and processing.

United States of America, American Dairy Science Association

Journal of Dairy Science 57 (5) 585-587 (1974)

[En]

[Continued from preceding abstr.] Influence of elevated polyunsaturated fatty acids on processing and physical properties of butter, by F. W. Wood, M. F. Murphy & W. L. Dunkley (M25); Melting characteristics of milk fat, butter, and margarine with varied linoleic acid, by M. F. Murphy, W. L. Dunkley & F. W. Wood (M26); Fluorometric determination of sulphhydryl plus disulfide as an index to heat treatment of half-and-half, by V. Siribunrit & W. K. Stone (M27); Effects of carrageenan on canned ultrapasteurized 10 percent cream during storage, by W. S. Cheng, L. J. Luyt & C. S. Gelda (M28); Reconstitutability of dry milk products containing 26 or 13 percent fat, by A. Tamsma, A. Kontson & C. Sutton (M29); Effect of abnormal milk on processing pattern of a milk-based food product, by M. S. Rembolt & A. M. Swanson (M30); Shelf-life at 7°C of milk from retail outlets in Maryland, by D. L. Pirmohamed (M31); and Preparation of cheese-flavored dairy spreads containing 3 to 15 percent milk fat, by K. R. Spurgeon & S. W. Seas (M32). CDP

46

[Cheese flavours.]

Shiono Koryo Co. Ltd.

Japanese Patent 4 908 867 (1974) [Ja]

Cheese-like flavours are imparted to foods by incorporation of 8-nonen-2-one. IFT

47

Convenience foods based on spray-dried emulsions.
 Clarke, R. J.; Love, G.

Chem. Ind. and Industry No. 4, 151-155 (1974) [9 ref. En] [General Foods Ltd., Banbury, Oxon, UK]

Topping mixes are discussed in detail including whippability, the initial liquid form, the powder form and the final made-up emulsion, and also the physical structure and the part taken by milk fat globules. The functions of the fats, surfactants, protein and carbohydrates in the formulation of whipped toppings are dealt with. Powdered coffee lighteners, their lightening power and feathering resistance are discussed. AL

48

[Soybean milk enrichment.]

Nippon Kayaku Co. Ltd.

Japanese Patent 4 913 979 (1974) [Ja]

Soybean milk compositions are enriched and the odour improved by addition of methionine sulphoxide. IFT

49

The lactic acid fermentation potential of nondairy imitation milks.

Kosikowski, F. V.; Jolly, R.

Milchwissenschaft 29 (1) 18-21 (1974) [9 ref. En, de] [Dept. of Food Sci., Cornell Univ., Ithaca, New York 14850, USA]

17 reconstituted non-dairy imitation milks (12% TS) were compared with reconstituted and fresh cows' milk for their ability to produce lactic acid fermented milk foods and to sustain growth of thermophilic and mesophilic starter bacteria. Reconstituted non-dairy imitation milks generally displayed a slower acid development and coagulation time in the simulated production of yoghurt and Neufchatel cheese; these products did not compare favourably in flavour and texture with commercial products from fresh whole milk. Cheddar cheese could not be made from non-dairy imitation milks because of a lack of coagulation by rennet. 6 individual cultures [3 commercial lactic acid cultures, *Lactobacillus bulgaricus*, *L. helveticus* and *Streptococcus thermophilus*] grew appreciably slower in reconstituted non-dairy imitation milks than in reconstituted cows' milk controls. AS

50

[Process for manufacture of simulated human milk.]

Verfahren zur Herstellung einer simulierten Frischmilch.

Grahn, E.; Schölze, J.; Hempel, H. G.

German Democratic Republic Patent 104 707 (1974) [De]

The process involves removal of unions (i.e. of all nutrients and additives) from whey, e.g.

by ion-exchange, and mixing with proteins precipitated at the iso-electric point, fats, vitamins and minerals, followed by homogenization and addition of lactose and optionally also of other carbohydrates such as wheat starch. The product when ready for consumption contains 1.7% protein, 3.5% fat, 6% lactose, 2% wheat starch and 0.3% minerals. It is intended for feeding infants and for all purposes where it is described to prevent or inhibit undesirable intestinal flora. FL

51

[Method of producing low fat spread.] Verfahren zur Herstellung von fettarmem Streichfett.

Damerow, G.; Gütter, H. (Alfa-Laval Bergedorfer Eisenwerke GmbH)

German Federal Republic Patent Application 2 245 814 (1974) [De]

The product, containing about 40% fat but no emulsifiers which are foreign to milk, is prepared by mixing butterfat and/or vegetable fat and/or vegetable oil with water in the presence of a mixture of heat-precipitated denatured buttermilk protein and native milk protein, and preferably mixing (by wt.) 100 parts fat with 10-15 parts dried milk protein, 40-60 parts buttermilk protein and 40-60 parts water, optionally adding a gas. The mixture is pasteurized for a short period, then cooled while stirring. Thus a product containing >25% moisture is obtained. W&Co

52

[Studies on utilization of soybean protein for food manufacturing. III. Effects of soybean milk solids concentration on milk clotting activity of rennet.]

Yamanaka, Y.; Furukawa, N.

Journal of Agricultural Science [Tokyo Nogyo Daigaku Nogaku Shiro] 17 (2) 180-186 (1972) [11 ref. Ja, en] [Lab. of Utilization of Animal Products, Dept. of Zotech. Sci., Tokyo Univ. of Agric., Japan]

Milk clotting activity of rennet in skim-milk and whole milk with and without soybean milk was investigated using a curd tension meter. Increasing temp. from 30 to 40°C improved clotting activity and curd firmness; the latter also increased with increase in amount of rennet. Heating whole milk to 63°C resulted in a firmer curd with increasing rennet concn. while higher temp. resulted in a softer curd. Addition of CaCl_2 before renneting improved curd firmness at higher rennet concn. Addition of soybean milk to skim- or whole milk prolonged the coagulation time and required higher CaCl_2 concn. for coagulation. [from En summ.] DMK

53

[Homogenization of milk.]

Verfahren zur Herstellung von homogenisierter Milch.

German Democratic Republic Patent 104 707 (1974) [Ja]

Raw soybean milk is heat treated in high concn. and combined with sulphate after heating, or treated by blowing N_2 gas through it so that the refrigeration times of the curd produced are reduced. IFT

54

[Soybean milk flavour improvement.]

Nisshin Oil Mills Ltd.

Japanese Patent 4 921 073 (1974) [Ja]

The flavour of soybean milk is improved by a process employing passage over granular activated C. IFT

55

A hand operated butter printer.

Anon.

Allahabad Farmer 46 (1) 37-41 (1972) [En]

[Dept. of Dairy Tech., Allahabad Agric. Inst., India]

A hand-operated butter printing unit capable of preparing 27 butter prints of 50 g each at one time, so saving time over the classical wooden hand-operated printer (about 10 prints/min), is described. Wrapping in parchment paper is still done manually. The unit consists of a rectangular butter printing head fixed into a table top, a cutting head with cutting wires, a foot-operated adjustable butter lifter, and a horizontal cutting knife with adjustable cutting wires. A detailed description of the unit, diagrams of its components, and methods of operation are given. AL

56

[Spray-drying and instantizing of milk products.]

Bergmann, A.

Scienza e Tecnologia degli Alimenti 2 (5) 267-282

(1972) [3 ref. It, en] [Niro Atomizer,

Copenhagen, Denmark]

The equipment and processes for the spray-drying and instantizing of milk are described, together with details of the drying of skim-milk, infant feeding formulae, ice cream mix, coffee cream, milk substitutes, whey, latticello and caseinates. JMD

57

Dehydration of natural and simulated dairy products. [Book]

Gilkes, M. I.

Food Technology Review, Noyes Data Corporation

15 v. 8, 828 pp. ISBN 0-87554-053-0 (1972)

Clark Ridge, New Jersey, USA. Noyes Data Corp. Price \$70.00

This book is based on US patents since 1900, and is devoted to the dehydration of natural and simulated dairy products. Chapters include: General processes (pp. 3-16), Fat-containing products (pp. 17-59), Skim-milk (pp. 60-126), Whole-milk

(pp. 127-157); Concentrated milk (including evaporated milk and condensed milk) (pp. 158-178); Eggs (pp. 179-232); Miscellaneous dairy products (including egg products, dry dessert mixes, milk drinks, buttermilk, sour cream, yoghurt and dried cheese) (pp. 233-292); and Simulated dairy products (including coffee whiteners, dessert mixes, artificial sour cream whip, whipped toppings and cheese substitutes) (pp. 239-320). Company, inventor and US patent number indexes are included. VJG

58

[Method of agglomerating a powdered product and device for carrying out the method.]

Kleemann, T.; Rothmayr, W. (Societe des Produits Nestle SA)

Swiss Patent 550 605 (1974) [Fr]

Powdered product for preparing tea, coffee, drinking chocolate, and other beverages and foods, is agglomerated by contacting a stream of powdered material with a stream of saturated steam at 100-140°C and a stream of inert gas at 10-40°C, such as air, N_2 or carbonic anhydride. These 2 streams are coaxial with the powder stream, and may comprise a converging stream of steam while the gaseous stream is positioned between the 2 streams, or may be produced by suction forces due to flow of steam. Thus the powder particles are located in a turbulent zone, which improves contact with the steam and gas and contact between particles. W&Co

59

Fat characteristics and stability of nondairy and dairy powdered creamers.

Jolly, R. C.; Kosikowski, F. V.

Journal of Agricultural and Food Chemistry 22 (2) 295-298 (1974) [6 ref. En] [Dept. of Food Sci., Cornell Univ., Ithaca, New York 14850, USA]

A non-dairy and 2 cows' milk powdered creamers were analysed for fat and fatty components and changes in mp, refractive index, unsaponifiable matter and peroxide value before and after storage at ambient room temp. Sterols in non-dairy creamers were mainly campesterol, stigmaterol and β -sitosterol esters with highly saturated fatty acids (95-97.8%); after 3 months incubation these powders developed astringent and oxidized flavour with increased oxidized fatty acids and peroxide values but not acid number. Cows' milk powder cholesterol esters had fatty acids partly saturated with a few branched chains developing during storage; after 3 months' storage astringent flavour developed with increased oxidized fatty acids, acid number and peroxide values. SAB

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Texture Analysis of Foods	30	Sulphur Dioxide in Food Products
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Aseptic Packaging	35	Antibiotic Properties and Residues in Food (Excluding Nisin)
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Toxicology of Food Additives	36	Cadmium in Foods
Deep Fat Frying	37	Coffee
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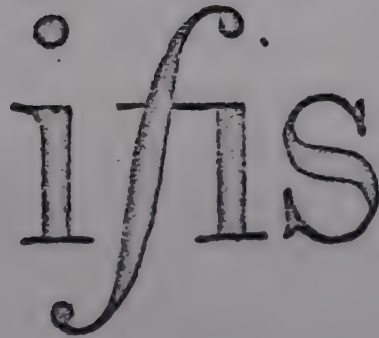
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H. BROOKES

ASSISTANT EDITOR

1 Soybean curd production.

Arkady New Foods

British Patent 1 356 363 (1974) [En]

An aqueous suspension of ground soybeans is heated to $>60^{\circ}\text{C}$, cooled and subjected to lactic fermentation with specific organisms to form a curd which is then pressed for use in simulated meat or cheese products. IFT

2

[Manufacture of a cheese-like product from soybean milk. II. Changes in trypsin inhibitor activity during heat treatment and curd formation from soybean milk.]

Matsuoka, H.; Sasago, K.

Journal of Food Science and Technology [Nihon Shokuhin Kogyo Gakkai-shi] 19 (6) 262-267 (1972) [8 ref. Ja, en] [Tachikawa Coll., Akishima, Tokyo, Japan]

Heating soybean milk samples of concn. 5, 10 and 15% at 100°C for 10 min, at 100°C for 20 min, at 120°C for 10 min, or at 120°C for 20 min decreased the trypsin inhibitor (TI) activity to 32.8-33.9, 27.4-31.3, 10.8-15.1 and 3.5-8.1%, respectively. TI activity (units/mg DM) was 0.31 and 0.05 in whey samples heated at 100°C for 10 min or 120°C for 20 min respectively. In curd samples, the corresponding figures were 0.19 and 0.09. The total TI activity was higher in curd than in whey. *Penicillium casei-colum* used as the starter to prepare a cheese-like product from soybean milk produced 3 proteases with optimum pH at 6.5 and 7.6. Proteinase activities were scarcely inhibited by adding raw soybean milk or curd made from heated soybean milk. [See *Journal of Food Science and Technology, Japan* (1968) 15 (3) 103 for part I.] SKa

3

[Caseinates in the food industry. Uses and analysis.] [Lecture]

Guerin, J.; Alais, C.

Industries Alimentaires et Agricoles 91 (4) 343-348 (1974) [15 ref. Fr, de, en] [Univ., Nancy, France]

Casein and its derivatives used in the food industry are briefly described, including acid casein, lactic casein, rennet casein, Mcaseinate and casein-whey protein co-precipitate. Food uses include coffee whiteners (coffee creamer), whipped toppings, instant breakfasts, imitation milk, dips, Cottage cheese, bakery, confectionery and meat products. Analytical standards and methods are briefly discussed. RM

4

[Food chemical study of soybean proteins. X. Shifting of protein to cream layer of soybean milk and the emulsifying capacity.]

Shibasaki, K.; Okubo, K.; Sato, T.

Journal of Food Science and Technology [Nihon Shokuhin Kogyo Gakkai-shi] 19 (12) 580-584 (1972) [16 ref. Ja, en] [Fac. of Agric., Tohoku Univ., Sendai, Japan]

Soybean milk was fractionated into (i) cream, (ii) aqueous liquid, and (iii) residue. Yields of (i), (ii), and (iii) were 12.7, 43.9, and 3.2% respectively. (i) contained 1.49% N after thorough washing with water and was subjected to starch gel electrophoresis. The protein corresponded to bands 5, 10, and 11; band 10 corresponded to the 7S component of soybean protein. Emulsifying capacity of water extract and acid-precipitated protein was increased by heating. The heat-coagulated fraction of the acid-precipitated protein was similar to the protein contained in (i). The emulsifying capacity of each protein increased on heating. SKa

5

Regulators of cell division in plant tissues. XX. The cytokinins of coconut milk.

Letham, D. S.

Physiologia Plantarum 32 (1) 66-70 (1974) [27 ref. En] [Res. School of Biol. Sci., Nat. Univ., Canberra, Australia]

Procedures were advised for purification of the cytokinins in the milk of mature coconuts (*Cocos nucifera* fruits). One cytokinin isolated in crystalline form was unequivocally identified as 9- β -D-ribofuranosylzeatin. This compound appeared to account for a large proportion of the cytokinin activity in n-butanol extracts of coconut milk. The activity which was not extracted by n-butanol was largely due to unidentified compounds which could be partially purified by adsorption onto and elution from charcoal. AS

6

Making soft-serve ice cream.

Crowhurst, B.

Ice Cream and Frozen Confectionery 26 (12) 814, 816 (1974) [En]

Principles of formulating soft-serve ice cream mixes are given. Details of ingredients for 4 different mixes and the basic formulae are indicated. Use of some ingredients as a partial replacement for other in short supply is also mentioned, e.g. one recipe uses soya flour. JR

7

[Development of new milk products.]

Krivanek, M.

Vyziva Lidu 29 (10) 151 (1974) [Cs]

Recent trends and developments in dairy processing in Czechoslovakia include: a rapid increase in plastics sachets for milk packaging (accounting for 40% of total packaged market milk in 1973); introduction of tvaroh desserts of long

keeping quality flavoured with chocolate, wine or coffee; low-calorie butter with 40% moisture; ice cream-yoghurt product (ratio 1:1); and a product made by drying a mixture of condensed skim-milk and acid whey for use in new types of bread. FL

8

[Method of producing a low-fat spread for bread.]
Verfahren zur Herstellung eines fettarmen
Brottaufstriches.

Lagoni, H.

German Federal Republic Patent Application

2 301 613 (1974) [De]

Low-calorie milk-based butter substitute is produced by separating milk into low-fat and high-fat fractions at 30-70°C, preferably 30-55°C, dehydrating the low-fat fraction at 35-78°C, preferably 35-45°C, and recombining the 2 fractions to form a mixture having a fat content of ≤40% which may be achieved by adding non-fat milk-based dry substances such as dried milk, curd cheese, casein, whey protein and/or products of casein or whey protein. Vitamins, colouring, flavouring and thickening agents may also be added, and spreading capacity improved by homogenization or by ultrasonic treatment. W&Co

9

[Formulating an imitation cheese spread to make dairy proteins go farther.]

Bennett, R. F.; Ohren, J. A.

Food Product Development 8 (4) 15 (1974) [En]

[Food Products Technical Service, Grain Processing Corp., Muscatine, Iowa, USA]

Investigations were carried out into the feasibility of extending milk proteins with a modified soya protein isolate Pro-Fam® 90/HS, in order to develop a snack spread base with characteristics similar to Neufchatel. Formulation and method of preparation are presented for a bland snack spread base, and for artificially flavoured blue cheese snack spread (prepared from the bland base). This snack spread has a unique advantage over most cheese spreads: it is spreadable at refrigerated temp. as well as at room temp. VJG

10

[Butter flavours.]

Shimamoto, S.; Kuroki, -.

Japanese Patent 4 922 696 (1974) [Ja]

A synthetic butter-like flavour is produced by adding lipase to an oil-in-water emulsion of a synthetic triglyceride containing lactic acid and cows' milk. IFT

11

[Decrease of redispersibility of dried soybean protein powder during storage.]

Okamoto, S.; Matsuura, K.

Journal of Food Science and Technology [Nihon Shokuhin Kogyo Gakkai-shi] 21 (5) 239-241

(1974) [2 ref. Ja, en] [Fac. of Agric., Tokyo Noko Univ., Fuchu-shi, Tokyo, Japan]

During storage of dried soy-milk or soybean protein powder, the proteins are sometimes insolubilized after about 3 months at room temp. or during overseas transport. Studies indicated that the insolubilization was probably due to interactions of protein molecules by their Sh groups or hydrophobic groups. The reactions were accelerated when the products had comparatively high moisture contents. [See also FSTA (1971) 3 3J177 & 7J884.] AS

12

Acidic proteinaceous beverages.

Puski, G. (Central Soya Co. Inc.)

United States Patent 3 843 802 (1974) [En]

A curd obtained from soybean protein, sodium caseinate, wheat gluten, fish protein concentrate or microbial protein is heated to reduce microbiological contamination, after which it is slurried with a proteolytic enzyme and, after predetermined time, heated to inactivate the enzyme. After separation of the insoluble material, the soluble protein curd is dried for incorporation into beverages having a pH range of 2-5.5. IFT

13

Growth of lactic acid bacteria in soy milks.

Mital, B. K.; Steinkraus, K. H.; Naylor, H. B.

Journal of Food Science 39 (5) 1018-1022 (1974)

[39 ref. En] [Cornell Univ., New York St. Agric. Expt. Sta., Geneva, 14456, USA]

Selected lactic acid bacteria were studied for their growth characteristics in soybean milks and their ability to utilize carbohydrates (predominantly sucrose) present in soybeans and soybean products. Results showed that lactic acid bacteria such as *Streptococcus thermophilus*, *Lactobacillus acidophilus*, *L. cellobiosus* and *L. plantarum*, which are able to utilize sucrose, could be employed in the manufacture of fermented soy milk products. IFT

14

Butterine made from rape seed oil.

Alsafar, T.

Canadian Institute of Food Science and Technology Journal 7 (3) 220-225 (1974) [15 ref. En, fr]

[Dept. of Food Sci., Univ. of Alberta, Edmonton, Alberta, Canada]

Butterines of good flavour and acceptable physical properties were made from rape seed oil and 50% milk fat (cream) or butter by conventional butter churning processes. The use of butter oil

resulted in butterines with an oily taste, high oiling-off, coarse crumbly texture and poor spreadability. The use of a continuous buttermaking method, based on the Votator principle, produced good flavoured butterines with desirable physical properties from butter oil as well as milk fat (cream) and butter. These butterines spread readily on bread at 5-10°C but had higher oiling-off and hardness properties than conventionally churned butter. The keeping quality at 5°C of the butterines made by the continuous process, based on the growth of microorganisms, was exceptionally high. Some evidence is presented to show that the fine dispersion of the serum content is an important factor in the keeping quality of these butterines.

AS

15

Production of wholemilk replacer by the biological processing of whey. [Conference proceedings] Shamgin, V. K.; Zalashko, L. S.; Mizyakina, A. M. *XIX International Dairy Congress* 1E, 750 (1974) [3 ref. En] [Belorussian Branch, All Union Dairy Res. Inst., USSR]

Production of the replacer involves fermentation of whey by selected yeast strains and addition of supplements to give a final concn. in the dried product of 22-25% protein (of which yeast cell proteins from up to 74%), 20-21% fat, 39-40% lactose, 7-8% ash and 5-6% moisture. The replacer has a high content of riboflavin and thiamin. DMK

16

Milk substitutes - Miltone. [Conference proceedings]

Chandrasekhara, M. R.

XIX International Dairy Congress 1E, 747-748 (1974) [En] [Bangalore Dairy, Bangalore, India]

Miltone, a vegetable protein-toned milk made with edible groundnut flour, was developed at the Central Food Technology Research Institute, Mysore. It is being processed at the Bangalore dairy and fed to 60 000 children aged 1-6 yr, under a special nutrition programme. The Indian Government has set up 2 further Miltone plants at Ernakulam (Kerala) and Hyderabad (Andhra Pradesh). A further plant is planned for Bangalore. EJM

17

Experiments with the modified Alnarp regenerative treatment of cream. [Conference proceedings]

Dixon, B. D.

XIX International Dairy Congress 1E, 662 (1974) [En] [Gilbert Chandler Inst. of Dairy Tech., Werribee, Victoria, Australia]

Experimental results showed that when using this treatment to improve butter spreadability there was some advantage in extending the crystallizing stage to 22°C and/or 4 h (vs. 20°C and 2 h). There were no significant differences in firmness between

butters churned from cream cooled by single passage or circulation through a heat exchanger or by jacket cooling. ADL

18

A comparative appraisal of carbonylic flavour compounds in ghee and butter oil. [Conference proceedings]

Gaba, K. L.; Jain, M. K.

XIX International Dairy Congress 1E, 219 (1974) [3 ref. En] [Nat. Dairy Res. Inst., Karnal, India]

Ghee, made at 100°C, and butter oil, separated at 50-60°C, were prepared from the same ripened-cream butter from buffaloes. The ghee was richer in alkan-2-ones and butter oil was richer in alkanals and relatively richer in alk-2-enals and alk-2,4-dienals. Typical ghee flavour was obtained by heating butter oil with butter scum, serum and sediment. JMD

19

Pneumatic powder conveying system solves dust and sanitation problem.

Rupp, P.; Stinson, W. S.

Food Processing 35 (11) 85-86 (1974) [En]

Details are given of an enclosed, pneumatic powder conveying system installed at Deltown Chemurgic Corp., Belleville, Wisconsin, USA for the handling and mixing of powders with liquids in the manufacture of various spray dried products used by bakeries, confectioners, manufacturers of coffee whiteners and other food processors. The system has virtually eliminated the dust problem previously experienced and resulted in savings in time and labour. AA

20

Formulation options for a shelf-stable pizza topping. Tulley II, W. B.

Food Product Development 8 (7) 64 (1974) [En] [Protein Application R & D, Ralston Purina Company, St. Louis, Missouri, USA]

The wider availability of prebaked pizza crust shells has created a need for the production of a convenience, shelf-stable topping for use with these shells to shorten home preparation time requirements. A recipe is presented for a meatless topping based on a blend of 2 unique soy proteins in a flavouring system. It can be used to extend ground beef or sausage as a pizza topping. 2 methods of processing the topping are described. VJG

21

Soy protein spreads.

Sessoms, F. E.; Hardy, M. E. (Procter & Gamble Co.)

United States Patent 3 851 070 (1974) [En]

A high nutrition food spread comprises 20-35

wt. % hydrated and subsequently dried soy protein, 10-25 wt. % sweetener, 1.5-3 wt. % substantially completely hydrogenated vegetable oil hardstock, 3-10 wt. % emulsifier, 0.2-1.0 wt. % citric acid, and the balance comprising a base stock liquid triglyceride. IFT

22

Nutritionally balanced milk substitutes, in dairy processing plants. [Conference proceedings] Baranao, F.; Garcia, P.; Valela, C.; Rutman, M. *IV International Congress of Food Science and Technology* 8a, 6-8 (1974) [En]

A technological process was developed allowing production of low-cost milk substitutes with a min. investment. Wheat flour with 75% solubility produced by enzyme treatment, soybean flour and oil, skim milk and added vitamins, minerals and flavours are combined to produce formulas with only 5% milk containing 21-30% protein and 2-30% fat. RM

23

[Bean curd product.]

Koyanagi, K.

Japanese Patent 4 939 819 (1974) [Ja]

A mixture of soybean milk and a coagulant packaged in a square plastics container is heated at a temp. of $<70^{\circ}\text{C}$ under vacuum to effect coagulation. IFT

24

Production and utilization of field peas (*Pisum sativum*). [Conference proceedings]

Youngs, C. G.; Craig, B. M.

IV International Congress of Food Science and Technology 8a, 67-69 (1974) [En] [Prairie Regional Lab., Nat. Res. Council of Canada, 110 Gymnasium Road, Univ., Campus, Saskatoon, Saskatchewan S7N 0W9, Canada]

Production of protein concentrates from pea flour by wet milling or dry milling with air separation was investigated. Wet milling yielded 33% protein concentrate with 58% protein + 67% starch with 0.8% protein but involved evaporation of 5 lb water/lb flour processed and produced denaturated protein. Dry milling produced 35% concentrate with 55% undenaturated protein and more economic processing. Concentrates have been successfully incorporated into cereal foods, meat analogues and milk replacers. RM

25

A new sweet whey-soy protein blend for the baker. Scanlon, J.

Bakers' Digest 48 (5) 30-33, 56 (1974) [4 ref. En] [Swift & Co., Res. & Development Center, Oak Brook, Illinois, USA]

Details are given of the properties of a new

product which has many of the properties of dried skim-milk, for which it could be used as a substitute in the baking industry. The new ingredient is a unique spray-dried union of sweet whey and soy protein. It is manufactured by a patented wet blending process designed to eliminate the objectionable soy flavour. The wet processing yields a product which is more bland than simple mechanical mixtures of cheese whey and soy flour. A typical analysis of the product is: protein (55-65% water-soluble), 27.0%; fat, 1.0%; moisture, 2.0%; ash, 8.0%; carbohydrate, 61.5%; and fibre, 0.5%. Food applications of the product include cakes, bread and biscuits, cream pies, icings and cookies. AA

26

The quality of UHT-treated coffee cream as influenced by variations in fat content, homogenization pressure and storage temperature. [Conference proceedings]

Bhatnagar, R. S.; Solberg, P.; Oterholm, B.

XIX International Dairy Congress 1E, 661 (1974)

[En] [Dairy Res. Inst., Agric. Univ. of Norway, Aas-NLH, Norway]

Cream samples containing 10-16% fat (FC) and homogenized at 120-240 kgf/cm² (HP) were stored at 4° or 20°C for 20 wk after treatment in a VTIS (Alfa-Laval) UHT sterilization plant with direct steam injection and a Tetra Aseptic filling machine. Viscosity increased with increased FC and HP, particularly when stored at 4°C. Protein stability decreased during storage, particularly at high FC and HP. All samples remained sterile until opening and were palatable, although slight oxidized flavours were apparent after 20 wk at 20°C. MC

27

[Possibilities of the use of caseinates in the dairy industry.]

Olsansky, C.; Jetmar, M.; Pazdersky, K.;

Havlickova, J.; Bartosek, V.; Stary, M.

Prumysl Potravin 25 (11) 335-336 (1974) [Cs]

The results of these studies on the use of sodium caseinate in dairy processing showed that (i) it did not improve the characteristics of whipping cream, (ii) it improved the consistency of and reduced serum separation in tvaroh produced using curd separators and in creamed tvaroh products, and (ii) in processed cheese manufacture it had favourable effects on structure and consistency of the finished products and partially replaced emulsifying salts. It is concluded that sodium caseinate in combination with other stabilizers and emulsifiers may find considerable application in the food industry. FL

28

The use of milk products for whitening soft drinks. [Conference proceedings]

Henderson, J. O.

XIX International Dairy Congress 1E, 749 (1974)

[En] [Div. of Food Res., CSIRO, Melbourne,

Australia]

Milk products studied included homogenized whole milk, 40% fat cream, butter, evaporated whole milk, sweetened condensed milk and dried milk. At the 0.6% milk solids level in the dilute soft drink max. whiteness was obtained with sweetened condensed milk, dried whole milk giving about the same whitening effect but also affecting the flavour of the drink. It is concluded that milk solids, particularly sweetened condensed milk, may be used to produce a stable cloud in soft drinks with pH values of ≤ 3.6 ; however, the factors influencing the formation of a 'ring' at the surface require further investigation. FL

29

Manufacture of low-fat dairy spreads. [Conference proceedings]

Antila, V.; Kankare, V.

XIX International Dairy Congress 1E, 676-677 (1974) [En] [St. Inst. for Dairy Res., Jokioinen, Finland]

Tests were carried out on the effects of gelatinizing agents on the stability of a basic low-fat dairy spread mixture containing: 17.8 kg cream (45% fat), 0.4 kg dried buttermilk, 1.6 kg cream starter, 0.18 kg salt, and 8 ml of a 1.5% aqueous solution of β -carotene. The mixture was divided into 3 parts and (i) 0.5% gelatin, (ii) 0.5% sodium carboxymethylcellulose, (iii) no gelatinizing agent added. The preparations had pleasant taste, good consistency and spreadability at all temp., and kept well at room temp., although some whey exuded from (iii). AL

30

Whitening properties of milk constituents in coffee creamers. [Conference proceedings]

Aneja, R. P.

XIX International Dairy Congress 1E, 748-749 (1974) [En] [Nat. Dairy Development Board, Anand, India]

The whitening and colouring properties of various coffee creamers were studied by reflectance spectrophotometry and on the Hunter Scale. The whiteness produced by fat was approx. $2.2 \times$ that produced by SNF. Conc. skim-milk with 30% SNF gave the same whitening effect as cream with 10% fat and 8% SNF, but the colour of prepared coffee was dependent on the fat:SNF ratio. AL

31

Milk replacer cuts ingredient cost up to 25%. Anon.

Food Processing 35 (11) 20 (1974) [En]

Details are given of Lactein 35, a product introduced by the Purity Cheese Co., Mayville, Wisconsin, USA which is a bland spray-dried powder consisting of demineralized and lactose

reduced whey and sodium caseinate. 23 dry mixes for preparing processed foods were evaluated in which 50 or 100% of NFDM (nonfat dried milk) was replaced by Lactein 35. In formulations for all 23 products tested, the milk replacer was found to perform better than or was equal to NFDM. Products containing chocolate or cocoa had a 'richer' flavour with less masking of the chocolate. Baked products containing the replacer had a better shelf life because of better moisture retention. Cost of the ingredient at the time of the evaluation was about 25% less than for NFDM. AA

32

Production and properties of a nutritious beverage base from soy products and cheese whey.

[Conference proceedings]

Holsinger, V. H.; Sutton, C. S.; Edmondson, L. F.; Crowley, P. R.; Berntson, B. L.; Pallansch, M. J.

IV International Congress of Food Science and Technology 8a, 16-17 (1974) [En] [E. Regional Res. Centre, Agric. Res. Service, USDA, Philadelphia, Pennsylvania 19118, USA]

Fluid sweet cheese whey, full fat soy flour, soybean oil and corn syrup solids, when combined, pasteurized, homogenized, condensed in vacuo to over 40% TS and spray dried or foam spray dried, yield a free flowing powder, readily reconstitutable with water to form a nutritious beverage with high protein content. A vitamin-mineral premix may be dry blended with the powder to increase the nutritional quality further. The formulation of the product is flexible and the taste quality readily lends itself to flavouring. The product shows good storage life and resists oxidative change in the dry state. AS

33

Treatment of soy milk oligosaccharides by a homogenic enzyme extract containing α -galactosidase.

Crocco, S. C.

Dissertation Abstracts International, B 35 (2) 878: Order No. 74-18329 (1974) [En] [Louisiana St. Univ., Baton Rouge, 70803, Louisiana, USA]

Treatment of soybean milk with a crude enzyme extract from germinating soybeans showed degradation of the oligosaccharides, which are reputed to be responsible for legume flatulence, with a concomitant increase in the amount of mono- and disaccharides present. In the enzyme preparation, α -galactosidase was stable to repeated cyclic freezing and thawing, and its activity was not significantly affected by the process of lyophilization. Investigations into the relationship of enzyme activity and pH showed that optimum pH was achieved in a phosphate buffer system at pH 4.6. VJG

34

Fermentation of soy milk oligosaccharides by lactic acid bacteria.

Mital, B. K.

Dissertation Abstracts International, B 35 (2) 880: Order No. 74-17658 (1974) [En] [Cornell Univ., Ithaca, New York, 14850, New York, USA]

The ability of lactic acid bacteria to ferment oligosaccharides was studied in soy milk prepared (i) from soaked, raw soybeans ground with boiling water and (ii) ground raw soybeans defatted with 95% ethanol and chloroform. All organisms showed higher growth rates in soy milk (i) than in (ii). Differences in (i) and (ii) were related to the loss of some growth factors during solvent extraction. *Streptococcus thermophilus*, *Lactobacillus acidophilus*, *L. cellobiosus* and *L. plantarum* exhibited significant growth and produced substantial amounts of acid in soy milk. α -Galactosidase activity necessary to serve α -D-galactosidic bonds in raffinose and stachyose was detected in several species of lactobacilli. The α -galactosidases from different lactobacilli showed max. activity in pH range 5.2-5.9. Utilization of oligosaccharides during fermentation of (i) was studied by GLC of trimethylsilyl derivatives. Soy milks were evaluated for organoleptic acceptability. (ii) was rated slightly inferior to fresh cows' milk control but greatly superior to (i). A yoghurt like product made from (ii) using *S. thermophilus* was found more acceptable than that fermented with *L. acidophilus* or *L. plantarum*. Lactic fermentation did not significantly change the amino acid contents of the soy milk. VJG

35

Aqueous processing of coconuts: economic analysis.

Hagenmaier, R. D.; Cater, C. M.; Mattil, K. F.

Journal of the American Oil Chemists' Society 52 (1) 5-9 (1975) [11 ref. En] [Food Protein Res. & Dev. Center, Texas A&M Univ., College Station, Texas 77843, USA]

A process was previously developed at Texas A&M University for aqueous processing of coconuts to produce oil and a conc. skim-milk. This paper details the costs for the process and concludes that 20% of rate-of-return can be realized if the market price of coconut skim-milk solids are assigned the value of \$0.50/kg (bulk price). AS

36

Whitening properties of coffee creamers. I.**Quantitative evaluation.**

Aneja, R. P.; Blankenagel, G.; Humbert, E. S.

Canadian Institute of Food Science and Technology Journal 7 (1) 40-43 (1974) [20 ref. En, fr] [Dept. of Dairy & Food Sci., Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada]

Assessments of coffee whiteness from reflectance data converted to Hunter-L values showed good

correlation with visual ratings. Values for creamers themselves did not reflect their whitening power in coffee. Correlation between values obtained from reflectance at 10 wavelengths and estimated values at 565 nm only was excellent. Creamers examined included Creamilk (10% fat, 8% SNF), evaporated milk (7.8% fat, 18% SNF), homogenized milk (3.3% fat, 8.5% SNF), partly skimmed milk (2% fat, 8.5% SNF), skim-milk (8.5% SNF), and frozen (5% fat, 13% SNF) and dried (32% non-milk fat, 65% SNF) coffee whiteners. SAB

37

[Special cream for adding to coffee.]

Goded y Mur, A.

Revista Espanola de Lecheria No. 93, 167-171 (1974) [Es]

The various stages in the manufacture of coffee cream in paste or tablet form are explained, particularly pasteurization, homogenization, and addition of stabilizer (for which disodium phosphate is recommended). Some possible defects of the cream are indicated, and the procedure for determining its coagulability is briefly explained.

ADL

38

Method of making puddings containing soy protein.

Magnino, P. J.; Hoer, R. A.; Hahn, R. E.; (Ralston Purina Co.)

United States Patent 3 852 503 (1974) [En]

Method is described for preparing an improved acid-stable, isolated vegetable protein food, preferably soy-based, possessing excellent stability in acid-based media. The steps involved are: formation of slurry (pH 2.0-4.2) of isolated protein in water; heating the slurry practically instantaneously to 250-320°F (preferably by steam injection); maintenance of temp. under positive pressure to destroy the trypsin inhibitor and spore-forming organisms, and to improve solubility in the acid pH range; suddenly releasing pressure to flash off the vapour; and drying the slurry to a powder. Applications include preparation of acid products such as puddings, sour cream and candy. HBr

39

Soy cheese.

Tsumura, H.; Hashimoto, Y.; Kubota, H. (Fuji Oil Co. Ltd.)

United States Patent 3 857 970 (1974) [En]

An emulsion of soy milk and an edible fat is subjected to lactic acid fermentation and mixed with an aldonic or uronic acid lactone. The resultant curd is cooked and aged to produce a cheese-like product. IFT

40

Study of the chemical, physical and microbiological stabilities of coconut milk. [Conference proceedings]

Martin, Z. J.; Uboldi-Eiroa, M. N.; Kato, K.; Angelucci, E.; Silva, S. D.; Leitao, M. F. F.

IV International Congress of Food Science and Technology 8b, 72-74 (1974) [En] [Inst. de Tecnologia de Alimentos, CP 139, CEP 13.100 Campinas-SP, Brazil]

To produce coconut milk, the meat is ground and pressed, and the milk obtained is heated briefly to 90°C; 0.3% sorbitol mono-oleate and 0.4% carboxymethyl cellulose are added, and the milk is homogenized, bottled and sterilized at 115°C for 45 min. Physical, chemical and microbiological stability was achieved; the chemical composition of the final product is tabulated. AMW

41

Utilization of oligosaccharides by lactic acid bacteria during fermentation of soy milk.

Mital, B. K.; Steinkraus, K. H.

Journal of Food Science 40 (1) 114-118 (1975) [29 ref. En] [Dept. of Food Sci. & Tech., Cornell Univ., New York St. Agric. Exp. Sta., Geneva, New York 14456, USA]

Utilization of oligosaccharides during fermentation of soy milk with lactic acid bacteria was studied. Trimethylsilyl derivatives of sugars were prepared and analysed Lactobacillus GLC. Fermentation of soy milk with *Lactibacillus celobiosis* resulted in complete utilization of sucrose and raffinose within 20 h. Stachyose concn. decreased 35% during this period and then remained unchanged. From 6 h onwards an unknown compound identified as mannitol appeared, probably formed by the reduction of fructose released during sucrose hydrolysis. *L. plantarum* completely utilized sucrose within 30 h, raffinose content decreased slightly during early stages of fermentation and then remained constant. Only 60% of stachyose was utilized. Fermentation of soy milk with *L. fermenti* showed complete utilization of raffinose and stachyose within 12 and 25 h respectively. Sucrose was not fermented. Fermentation of soy milk with a mixed culture of *Streptococcus thermophilus* and *L. fermenti* resulted in complete utilization of raffinose and stachyose, while 0.08% of sucrose remained unfermented. IFT

42

[Simulation of yoghurt flavour and aroma.] (In "Zbornik prednasok z II. Sympozia o aromatickych latkach v pozivatinach".) [Conference proceedings] Görner, F.; Palo, V.; Seginova, M. pp. 124-130 (1973) [18 ref. Sk] Bratislava, Czechoslovakia; Slovenska Chemicka Spolocnost pri SAV [Chemickotech. Fak., SVST, Bratislava, Czechoslovakia]

Addition to fresh milk (2% fat) of acetaldehyde in different proportions alone or with acetic acid and/or lactic acid did not lead to taste or aroma simulating those of yoghurt. In further tests, cream starter and graded quantities of acetaldehyde were added to pasteurized milk (2% fat); the samples were held for 22 h at 22°C and assessed organoleptically; with 30 ppm acetaldehyde, typical yoghurt taste was obtained, but in the yoghurt-like aroma acetaldehyde obtrusion was evident. Fresh milk (2% fat) was incubated for 2 h with 3% yoghurt starter at 40°C; the taste was acid at this stage (31°SH) but neither taste nor aroma were those of yoghurt; however, addition of 10-20 ppm acetaldehyde resulted in the mixture showing typical yoghurt taste and aroma. It is concluded that, though acetaldehyde is the main component of yoghurt taste and aroma, compounds other than those tested participate. SKK

43

[Free C4-C12 fatty acids in yoghurt and cultured cream.] (In "Zbornik prednasok z II. Sympozia o aromatickych latkach v pozivatinach".) [Conference proceedings]

Görner, F.; Palo, V.; Seginova, M. pp. 131-138 (1973) [8 ref. Sk] Bratislava, Czechoslovakia; Slovenska Chemicka Spolocnost pri SAV [Chemickotech. Fak., SVST, Bratislava, Czechoslovakia]

In view of literature indications that volatile C4-C12 fatty acids may include the unidentified components of yoghurt taste and aroma [see preceding abstr.], the volatile components of approx. 10 l. batches of (i) skim-milk (0.03-0.05% fat), (ii) skim-milk fermented with a yoghurt starter for 3-4 h, (iii) sweet cream (10% fat), or (iv) cultured cream made from it using a cream starter were obtained by stem distillation and concentration in the Lindsay et al. apparatus [Journal of Dairy Science (1965) 48 (12) 1566-1574]. The concentrates were examined by GLC; chromatograms of (i)-(iv) are presented. (ii) contained 17 × more acetic, 10 × more butyric, 8 × more caproic, 3 × more caprylic and 6 × more capric acids than the corresponding (i). Similar, though less marked, differences were found between (iii) and (iv), and it pointed out that the yoghurt starter liberated more volatile fatty acids than the cream starter. It is considered highly likely that the unidentified yoghurt taste and aroma components are among the volatile fatty acids. SKK

44

[A non-milk 'cheese'.]

Vernon, H. R.

Alimentaria 10 (49) 53, 55, 57-59 (1973) [Es] [Anderson Clayton, Dallas, Texas, USA]

Production of a 'non-milk' cheese by the Anderson Clayton Organization, Dallas, USA is reported. This has been developed to imitate traditional washed curd, plastic type 'Mozzarella', but a mild 'non-milk Cheddar' is also available. The product is not intended for direct consumption, but rather for cooking purposes (e.g. pizzas, macaroni, sauces for vegetables), when it is stated to be indistinguishable from natural cheese in odour, flavour and physical characteristics. The product is very versatile and can be melted, ground, grated, cut and moulded. It is prepared [details not disclosed] from sodium and calcium caseinates and selected hydrogenated vegetable oils, with additions of artificial flavours, mineral salts and amino acids to provide the required flavour and nutritional value. The process includes a heat treatment which ensures low numbers of bacteria and the absence of *Salmonella* spp., and a mould inhibitor is incorporated. Detailed chemical analyses are tabulated for 'natural' and 'non-milk' Mozzarella and Cheddar cheeses and nutritional values were determined by animal feeding tests (wt. gain and protein efficiency ratio); results were almost identical for natural and non-milk products. The product contains 21% fat and 23% protein, with contents of essential amino acids, mineral salts and vitamins equivalent to those of natural cheese. Compared with naturally ripened cheese it is uniform in flavour and consistency at all times, has good storage properties, is lower in cost and is not directly dependent on availability of milk supplies. ELC

45

MMB's Aspatria creamery.

Anon.

Food Processing Industry 43 (514) 25 (1974) [En]

A description is given of the new £4 million creamery at Aspatria, Cumberland, which has a daily capacity of up to 110 000 gal of milk which is converted into 48 t of Cheddar cheese. Fully operational average weekly output is expected to be 200 t of Cheddar cheese, 110 t whey powder and 15 cwt whey butter. VJG

46

Impact of vegetable proteins on dairy products.

Jonas, J. J.

Journal of Milk and Food Technology 38 (1) 39-43 (1975) [48 ref. En] [Kraftco Corp., Res. & Development, Glenview, Illinois 60025, USA]

The technological status of research trends directed toward creation of dairy product analogues based fully or partially on vegetable protein raw materials is reviewed. Particular emphasis is given to soya protein-based milk and cheese analogues. Nutritional and organoleptic properties of the analogues are critically discussed. Continued research activity is required by product developers to reach consumer satisfaction, nutritional adequacy, and legal approval for milk and cheese analogue products. AS

47

[Trends in evaporated milk market.] Der Kondensmilchmarkt mit unterschiedlichen Entwicklungsmöglichkeiten.

Hetzner, E.

Molkerei-Zeitung Welt der Milch 29 (14) 372-375 (1975) [De]

Information is given on evaporated milk in the Federal Republic of Germany, covering production, consumption, packaging, areas of use and external trade. Packaging is in small tins, 175 and 340-410 g sizes accounting for 97% of the product sold in retail trade; individual packages are combined in units of 3, 6-12 for supermarkets and even 24 for cash-and-carry shops. The 2-kg tin is used in canteens and catering establishments. During 1970-1974, total consumption of evaporated milk decreased from 458 936 to 421 608 t and annual per head consumption from 7.48 to 6.96 kg. It is estimated that about 80-85% of the milk consumed is used for whitening coffee, 8-10% for various purposes in the household, and an unspecified amount in baby foods. Evaporated milk has been imported traditionally from France and the Netherlands. Exports increased from 28 497 t in 1970 to 60 811 t in 1974, Libya, Algeria and Benelux countries being the major customers in 1974. FL

48

[Examination of some staple processed foods in the market of Fukuoka prefecture. II. Soybean curd and okyuto.]

Omura, H.; Takata, M.; Ishida, H.; Aramaki, T. *Science Bulletin of the Faculty of Agriculture, Kyushu University* 29 (1/2) 45-49 (1974) [2 ref. Ja, en] [Food Chem. Inst., Fac. of Agric., Kyushu Univ., Fukuoka, Japan]

Okyuto is a unique marine algal product in Fukuoka prepared from red algae, of the Ceramiaceae, mainly *Campylaeophora hypnaeoides* or *Ceramium boydenii*. A fresh uncooked dish of okyuto is eaten with soybean curd, especially during the summer. Sensory tests and chemical analysis were carried out on 5 brands of soybean curd and okyuto, which had been manufactured and sold in Fukuoka Prefecture. Composition of soybean curd and okyuto was as follows: soybean curd: moisture, 89.3-91.0%; protein, 4.6-5.8%; fat, 0.5-2.5%; carbohydrate, 1.6-2.8%; ash, 0.4-0.7%; calorie 35-47 Cal.; and okyuto: moisture, 95.8-96.9%; protein, 0.3-0.5%; fat, 0%; carbohydrate, 2.6-3.6%; ash, 0.2%. AS

49

Acceptability trials with instant CSM: taste and flavour preference of a rural community of India.

Grewal, T.; Gopaldas, T.; Hartenberger, P.; Ramakrishnan, I.; Srinivasan, N.; Devgun, D. P. *Indian Journal of Nutrition and Dietetics* 11 (6) 350-356 (1974) [9 ref. En] [CARE-India, B-28 Greater Kailash 1, New Delhi 48, India]

Taste and flavour preferences for a precooked form of instant corn-soy-milk (ICSM) were studied

in acceptability trials. In the first trial 38 children (6 months-3 yr) and 52 adults tested (i) vanilla flavoured and sweetened ICSM, (ii) sweetened unflavoured ICSM, and (iii) bland ICSM. (i) was preferred to (ii), and (iii) was least acceptable. In the second trial, 93 children and their guardians tested 10 flavoured ICSM products (sweet ICSM with almond, banana, cardamom, chocolate, lime, orange, vanilla or no flavour; salted ICSM with bay, coriander, or garlic flavour; unflavoured bland ICSM). Almond was the most frequently preferred flavour by adults, followed by orange, lime and chocolate. Sweetness was essential for high palatability by adults. Children appeared to like all products uniformly. AL

50

Protein composition.

Bosund, S. I.; Bengtsson, B. L. (Nestle SA)
British Patent 1 383 224 (1975) [En]

A protein product intended as replacement for skim-milk comprises (on dry wt. basis) 15-30% fish protein isolate (with $\geq 90\%$ protein, $< 0.5\%$ lipids and 1-10% minerals) and 70-85% whey solids, preferably 26% fish protein isolate and 74% whey solids. The product (spray- or freeze-dried) has a bland, sweetish flavour similar to skim-milk and may be used after reconstitution instead of liquid skim-milk. FL

51

Extraction of coconut milk by continuous screw press.

Cancel, L. E.; Rosario-Hernandez, J. A.; Hernandez, E. R. de
Journal of Agriculture of the University of Puerto Rico 58 (3) 322-329 (1974) [6 ref. En, es]
[Food Tech. Lab., Agric. Expt. Sta., Mayagüez Campus, Univ. of Puerto Rico, Rio Piedras, Puerto Rico]

A screw press, designed primarily for extraction of grape juice, was evaluated for the continuous extraction of coconut milk. Capacity, efficiency, extraction yield (wt. of coconut milk), and coconut milk, water and fat remaining in the press cake were studied. Speeds of 8.5, 12.5 and 17.5 rev/min were used on the pressing screw and pressures of 60-180 lb ft/in² on the creeping cone; optimum working conditions were found to be 17.5 rev/min and 100 lb pressure, giving a capacity of 3000 lb comminuted pulp/h. AL

52

Use of soy products in dairy product replacement. [Lecture]

Johnson, D. W.
Journal of the American Oil Chemists' Society 52 (4) 270A-271A (1975) [4 ref. En] [Food Ingredients, Inc., Wheeling, Illinois 60090, USA]

Soy protein products can be used to replace or supplement dairy products in many food products. Applications considered are: infant formulas based

on soy milk; sterilized soy milk products as beverages; cheese-type products from soy-based materials; soy protein isolates in margarine in the USA; soy protein isolates in coffee whiteners, coffee cream-type products and whipped toppings; and soy flour in bread. [See also author index under USA, American Oil Chemists' Society [Symposium].] VJG

53

[Method for manufacturing amylaceous products having a high content of soluble components.]

CPC 'Sas van Gent' BV

Netherlands Patent Application 7 307 838 (1974) [NI]

A highly soluble starch for use in milk substitutes for animal and human consumption is obtained by enzymic hydrolysis. A slurry of a starch material, water and a liquefying or saccharifying enzyme, preferably bacterial α -amylase is heated to hydrolysing temp. and simultaneously dried on a roller-drier. The drying stage lasts preferably 1-6 min. Heating is preferably by heat transfer from the rollers which are maintained at a temp. of 90-95°C. The obtained starch products have a low DE of normally < 10 ml a high soluble matter content of normally $> 80\%$. Low residual enzyme activity may be stopped by conventional methods, e.g. heating to deactivating temp., if the product is destined for human consumption. W&Co

54

Homemakers' opinions about dairy products and imitations: a nationwide survey.

Jones, J. L.
Marketing Research Report, USDA No. 995, 89pp. (1973) [En] Washington, DC, USA; USDA

A nationwide sample survey in the USA (based on interviews with 2219 homemakers) revealed widespread consumer misconceptions concerning the fat content of dairy products, e.g. regular whole milk of about 3.5% fat was described as containing $\geq 20\%$ fat by 7 in 10 homemakers. The fat content of ice cream was also often grossly overestimated. Low-fat liquid milk was the only product for which many homemakers gave an accurate answer, possibly because the fat content is sometimes indicated on the label. $> 33\%$ of homemakers said weight watching influenced food choices for ≥ 1 household member; many people in this category cut down or avoided using cream, butter and regular whole milk. Homemakers characterized butter, table cream, ice cream and regular whole milk as high in fat and calories and not good for people watching weight; low-fat liquid milk, ice milk and powdered non-dairy coffee creamer were described in opposite terms. Many homemakers credited regular whole milk with building strong teeth and bones and considered it high in Ca and important in a balanced diet. About half described whole milk and American cheese as high in protein. 8 in 10 respondents said adults should drink ≥ 2 glasses of milk/day, but roughly half said adults in their

households were not drinking as much milk as they should. Attractive features of imitation dairy products were generally identified as price, calorie count, convenience and keeping characteristics, while genuine dairy products were considered superior in taste, food value, and purity by absence of harmful additives. Among 8 new dairy product concepts, homemakers reacted most favourably to a chocolate-coated milk bar equivalent in food value to a glass of whole milk. ADL

55

Beverage product.

Bosund, S. I. W.; Bengtsson, B. L. (Nestle SA)
British Patent 1 383 225 (1975) [En]

A protein-rich beverage comprises (on DM basis) 15-30% fish protein isolate containing $\geq 90\%$ protein, $< 0.5\%$ lipids and $\leq 10\%$ minerals with an N solubility index of 80-100, 15-30% fat (vegetable and/or animal, e.g. soybean oil, maize oil, fish oil), 40-60% carbohydrate (various sugars such as sucrose, invert sugar, glucose and lactose), and 0-10% minerals. The product may be in solid or liquid form. By suitable selection of the proportions of the ingredients a product having the composition of milk may be obtained for use as a whole milk replacement, or a high-fat product may be made for use as cream replacement. FL

56

Attempt in use of skim milk powder and filled milk, for the manufacture of Cheddar cheese.

Abo-Elnaga, I. G.; Abdel-Mottaleb, L.; Hassan, H. N.

Scienza e Tecnica Lattiero-Casearia 25 (5) 187-201 (1974) [14 ref. En, It] [Dairy Dept., Fac. of Agric., Assiut Univ., Assiut, Egypt]

Cheddar cheeses were made from (i) fresh milk containing 3% fat (control), (ii) reconstituted milk made from dried skim-milk + fresh cream and (iii) filled milk in which hydrogenated cotton seed or soybean oils were used in place of the butterfat. Cheeses made from (ii) and (iii) contained more moisture, higher soluble and amino N contents and higher fat acidities but less fat than the control cheeses. Cheese made from (ii) often had a soft crumbly texture and a slightly bitter flavour while that made from (iii) had a hard crumbly texture and a sharp oily flavour. Addition of KCl + $MnCl_2$ and/or *Lactobacillus casei* to (ii) and (iii) did not affect the moisture content or soluble and amino N contents of the resultant cheeses, nor did it improve the texture but it did have a beneficial effect on the flavour of ripened reconstituted milk cheese and of the filled milk cheese containing soybean oil.

MEG

57

[Manufacture of anhydrous butterfat and its processing.] Herstellung und Verarbeitung von wasserfreiem MilCHFett.

Damerow, G.

Molkereitechnik 31, 68-80 (1975) [2 ref. De]

The author deals mainly with various Alfa-Laval processes, i.e. a continuous method for the manufacture of butter oil direct from whole milk; manufacture of butter concentrates (max. moisture content 0.1% and up to 5% SNF) by evaporating moisture from butter or high-fat (80-85%) cream in a vacuum evaporator or spray-drier; fractionation of butter; and recombination of butter from butter oil and water and optionally with the addition of dried skim-milk or buttermilk. Manufacture of low-fat butter is also outlined. FL

58

Foods can be given nutritional boost by high-protein powder from whey.

Anon.

Dairy and Ice Cream Field 158 (6) 66-67 (1975) [En]

A brief account is given of production and uses of dried Cottage cheese whey with 80-90% protein of which only $\leq 4\%$ is denatured if required. The production process involves pre-concentration by polyphosphate precipitation or ultrafiltration, gel filtration, vacuum evaporation and spray-drying. Uses of the product in the fortification of bread, macaroni-type pasta and soft drinks are discussed. FL

59

Influence of elevated polyunsaturated fatty acids on processing and physical properties of butter.

Wood, F. W.; Murphy, M. F.; Dunkley, W. L.

Journal of Dairy Science 58 (6) 839-845 (1975) [17 ref. En] [Dept. of Food Sci. & Tech., Univ. of California, Davis, California 95616, USA]

Milk fat, containing varied % of linoleic acid (1.8-28% of the fatty acids) from feeding cows a protected lipid supplement and by blending conventional and polyunsaturated milk fats, was used to make experimental butters by churning and by the continuous Votator system. Measurements were made of the hardness of the butters by disk and cone penetrometers, of melting characteristics of the milk fats by dilatometry, of butters by NMR, and of oiling off properties at 10° and 20°C. The higher the linoleic content of the milk fat, the softer the butter. Comparison at similar linoleic % of butters made from milk fat as produced by the cow and those from blends of conventional and polyunsaturated milk fat showed that products from blends were harder, had a wider temp. range at which they were plastic, and were less susceptible to oiling off at 20°C. At $< 12^\circ\text{C}$ butter made by the continuous Votator system was appreciably harder than that by churning, but at higher temp. hardness of the 2 butters was similar. AS

60

[Characteristics of enzyme preparations from yeasts.]

Smietana, Z.; Poznanski, S.; Zelazowska, H.; Rymaszewski, J.

Zeszyty Naukowe Akademii Rolniczo-Technicznej w Olsztynie No. 137, Technologia Żywności 4, 55-63 (1974) [24 ref. Pl, ru, en] [Inst. Inżynierii i Biotech. Żywności, ART, Olsztyn, Poland]

Collection strains of *Saccharomyces fragilis*, *Sacc. lactis*, *Candida pseudotropicalis* subsp. *lactosa* and 2 strains of yeast isolated from milk and cheese respectively were cultured aerobically for 12 h at 25°C in deproteinized rennet whey enriched with NH_4OH , K_2HPO_4 and corn steep liquor, pH being maintained at 5.5 with NaOH . The biomasses were separated by centrifugation, dried with acetone, and washed with diethyl ether. The proteolytic activities were tested against whole casein, isoelectric casein, and α_s -, β - and κ -casein preparations at different temp. and pH. Max. activities were found at 20° and 40°C, and pH 5.8 for the *Saccharomyces* strains (most active), pH 5.4 for *Candida* and pH 6.6 for the other 2 yeast strains from milk and cheese (least active). The degree of proteolysis was highest with isoelectric casein and α_s -casein, and lowest for κ -casein. SKK

61

[Changes in the lipid fraction of whey from heat treatment.]

Nakanishi, T.; Suyama, K.

Japanese Journal of Dairy Science [Rakuno Kagaku no Kenkyu] 24 (1) A21-A26 (1975) [9 ref. Ja, en] [Lab. of Chem. and Tech. of Animal Products, Fac. of Agric., Tohoku Univ., Sendai, Japan]

Heating whey to up to 170°C for 30 min resulted in an increase in total lipids from 0.43 to 0.8% in whey TS and a decrease in phospholipids (particularly phosphatidyl ethanolamine) from 29.5 to 8% (as a % of the total lipids). Neutral lipids were affected little by the heat treatment, although unknown compounds could be separated from the neutral lipid fraction of heated whey. Heat treatment resulted in a slight decrease in the linoleic acid content of whey lipids. [From En summ.] DMK

62

Complete rations for dairy cattle. I. Methods of preparation and roughage-to-concentrate ratios of blended rations with corn silage.

Marshall, S. P.; Voigt, A. R.

Journal of Dairy Science 58 (6) 891-895 (1975) [14 ref. En] [Dairy Sci. Dept., Univ. of Florida, Gainesville, Florida 32611, USA]

In the 1st of 2 reversal experiments with 28-day periods, 9 Holstein-Friesian and 9 Jersey cows were used to compare the following three ad lib. rations: an ensiled complete ration (31.2% urea-treated chopped maize, 38.8% concentrate, and 30% roughage), and comparable rations of urea-treated

maize silage + either moistened concentrate mixture blended at feeding, or dry concentrate fed separately. Ensiling DM loss and pH respectively averaged 2.9 and 3.85% for the ensiled complete ration and 5 and 3.75% for the urea-treated silages. DM density of the ensiled complete rations was 81% greater than that of the urea-treated silage. There were no significant differences between treatment means of DM intake, daily milk yield (18.7-19.3 kg), FCM yield, fat content or daily body wt. gain. In the 2nd experiment, widening the roughage/concentrate ratio of complete rations from (i) 40:60, to (ii) 30:70, or (iii) 20:80, was accompanied by an increase in daily milk yield ((i) 16.9, (ii) 18.5 and (iii) 19.5 kg, $P < 0.05$), and non-significant increases in DM intake under ad lib. feeding; SNF yield was higher on (i) than on (ii) and milk fat content was lower on (iii) and (ii) than on (i). MC

63

Preparation of a simulated milk product.

Arndt, R. H. (Ralston Purina Co.)

United States Patent 3 843 828 (1974) [En]

A simulated milk is produced from a mixture of sweet whey and isolated vegetable protein such as soya bean protein. The pH is adjusted and the mixture is heated, preferably at 285-320°F, and is given a vapour flash treatment to remove objectionable flavours and odours. Vegetable oil or fat is added before or after the vapour flash treatment and the mixture is adjusted to preferably pH 6.6-7.0 before homogenization. The simulated milk can be dried. JMD

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FAB 7

SYNTHETIC DAIRY PRODUCTS

SELECTED FROM VOLUME 8

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of

Commonwealth Agricultural Bureaux, Farnham Royal, Bucks; Institut für Dokumentationswesen, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen; Zentralstelle für maschinelle Dokumentation—Frankfurt am Main.

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H. BROOKES
ASSISTANT EDITOR

1

[Coffee whitener.]

Fuji Oil Co. Ltd.

Japanese Patent 5 011 458 (1975) [Ja]

Process is described for preparing highly modified oil-compositions useful as coffee whiteners or cake decorating compositions. IFT

2

Non-dairy cheese reduces ingredient costs by 25%.
Anon.

Food Processing 36 (1) 77 (1975) [En]

The increasing use of non-dairy cheese in the USA as a partial or total replacement of natural cheese in products such as pizza, enchilidas, macaroni dishes etc., is discussed. Three non-dairy products are available - American, Mozzarella and Cheddar. They are produced using Na and Ca salts of casein as a source of protein. The fat is derived from hydrogenated soybean oil. Artificial flavours, minerals, vitamins and a mould inhibitor are added. The Mozzarella product has been successfully held at refrigerated temp. (35-40°F) for 4 months and the Cheddar and American for 6 months.

Workability is better if the product is not frozen prior to use. However, after the products have been sliced, diced or shredded they can be frozen and thawed without any detrimental effects. All 3 of the products are nutritionally equivalent to natural cheese as shown in USDA Handbook 8. In addition, the American and Mozzarella items have been fortified to meet USDA-FNS specifications. AA

3

Effect of freezing soybean whey upon the performance of ultrafiltration process.

Chian, E. S. K.; Aschauer, M. A.

AIChE Symposium Series 70 (144) 163-169 (1974) [6 ref. En] [Univ. of Illinois, Urbana, Illinois, USA]

Simultaneous removal of pollutants and recovery of valuable by-products from soybean whey can be accomplished with a 2-step membrane ultrafiltration and reverse osmosis process. A distinct discrepancy in trans-membrane

ultrafiltration fluxes has been observed while evaluating laboratory and in-field pilot plant processing of soy whey. Results of this study indicate that freezing and thawing of soy whey prior to laboratory evaluation of membrane ultrafiltration process accounts for such discrepancy. This is also confirmed theoretically based on the characteristics of proteins in whey and the basic mass transport mechanism occurring during membrane processes. AS

4

Treatment of soy whey by membrane processing.

Jackson, G.; Stawiariski, M. M.; Wilhelm, E. T.; Goldsmith, R. L.; Eykamp, W.

AIChE Symposium Series 70 (136) 514-522 (1974) [2 ref. En] [US Environmental Protection Agency, Washington, DC, USA]

A 2-step membrane process is demonstrated for the treatment of soy whey. In both laboratory and in-field pilot studies, ultrafiltration and reverse osmosis were used to produce protein and sugar concentrates, respectively, as by-products, and a low BOD effluent. Operating data which show the important factors influencing membrane flux and separation efficiency are presented and discussed. AS

5

Coconut skim milk as an intermediate moisture product.

Hagenmaier, R. D.; Cater, C. M.; Mattil, K. F.

Journal of Food Science 40 (4) 717-720 (1975) [9 ref. En] [Food Protein Res. & Development Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Water extraction of comminuted coconut meats gives coconut milk, which can be centrifuged to give coconut skim milk. Liquid concentrates were prepared by direct evaporation of coconut skim milk, or by reconstitution of the spray-dried product. Objective of the research was to evaluate the concentrate as an alternative to spray-dried coconut skim milk. Concentrate with 30% moisture had a water activity of 0.74 and viscosity of 10 000 cP, and was stable to bacterial growth at 23°C storage. Other storage conditions were also investigated. Mould growth was controlled with 0.1% added sorbic acid. Problems with darkening of colour and fat oxidation were encountered, but overall results suggest that intermediate moisture coconut skim milk is a possible product form. IFT

6

Soy milk composition as affected by some technological conditions.

Hofi, A. A.; Mahran, G. A.; Farahat, S. M.; Mahfouze, M. B.

Egyptian Journal of Dairy Science 3 (1) 13-20 (1975) [12 ref. En, ar] [Food Sci. Dept., Fac. of Agric., Ain-Shams Univ., Cairo, Egypt]

Hampton var. soybeans were used in studies on the manufacture of soy milk. Variables studied were: soaking time and temp. (4, 8, 24, 48, 72 or 96 h at 5°C, or 4 or 8 h at 20-25°C); soybean:water ratio during extraction (1:3, 1:6, or 1:9); extraction temp. (28°, 46°, 48°, 55°, 60°, 69° or 73°C); and heat treatment of the soy milk (boiling for 5 min or sterilization at 120°C for 15 min). Tables of values are given for the yield, moisture content, acidity, pH, and point scores for colour, flavour and

consistency of soy milk samples prepared by the various methods. The results show that the best quality product was achieved with the following process: soaking for 24 h at 5°C; use of a bean:water ratio of 1:3; extraction at 40-60°C; and sterilization of the soy milk at 120°C for 15 min.

AJDW

7

Automated method for measuring added sucrose in sweetened cereal products with immobilized invertase.

Finley, J. W.; Olson, A. C.

Cereal Chemistry 52 (4) 500-505 (1975) [5 ref. En] [W. Regional Res. Lab., USDA, Berkeley, California 94710, USA]

The colorimetric method is based on aqueous extraction of surface from the sweetened product. The filtered extract is split, one aliquot passed over a column containing a phenol-formaldehyde resin to which invertase has been attached, and a second aliquot over a column of resin to which no invertase has been attached (blank). Reducing sugars are then determined by a dinitrosalicylic acid colorimetric method. All steps after initial extraction are performed with a Technicon AutoAnalyzer. Sucrose contents in various sweetened wheat-soy blends (WSB) and corn-soy-milks (CSM) were determined. AS

8

[Whippable fat emulsions.] Aufschlagbare Fettemulsionen.

Heine, C.; Gierlichs, C. (Henkel & Cie GmbH)

German Federal Republic Patent Application 2 353 663 (1975) [De]

A whippable cream based on vegetable fats with a high content of essential fatty acids consists of an emulsion in water of (i) 82-97.5 (preferably 89-95) wt.% of a natural, optionally hardened fat of vegetable origin having fatty acids with a chain length of C₆-C₂₂, and an increasing mp of 20-50°C; (ii) 0.5-3 (preferably 1-2) wt.% lecithin; (iii) 1-5, (preferably 2-3) wt.% of a fatty acid monoglyceride/citric acid ester having a chain length of C₆-C₂₂, and (iv) 1-10, (preferably 2-6) wt.% of a cold water-soluble pregelatinized starch. The fats used are quite suitable for consumption by persons for whom animal fats are not suitable, and are selected from non-hardened or partly hardened coconut oil and fat, cottonseed oil, groundnut oil, rapeseed oil, sunflower oil or similar oils. W&Co

9

Imitation milks and imitation milk products.

Winklemann, F.

World Animal Review No. 14, 31-36 (1975) [5 ref. En] [Animal Production and Health Div., FAO, Rome, Italy]

Imitation milks (e.g. cream and ice cream substitutes, imitation and synthetic condensed and evaporated milk, liquid milk and cheese), their

production and trade are reviewed as a possible means of reducing the future shortage of milk and milk products which has been estimated for 1980 at >15 million t milk equivalent in developing countries. MC

10

New developments in synthetic products. [Lecture] Longacre, H. W.

Quarterly Bulletin of the Association of Food and Drug Officials of the United States 38 (2) 89-94 (1974) [En] [Horace W. Longacre, Inc., Franconia, Pennsylvania, USA]

Consideration is given to areas where synthetics are increasingly important, namely, colour, flavour, modified food starch, and proteins. 4 types of soybean protein which may be substituted for meat in meat products are briefly described: soy flour; soy protein concentrate; isolated soy protein; and textured vegetable protein. VJG

11

Fabricated foods. [Book]

Inglett, G. E. (Editor)

vii+215pp. ISBN 0-87055-179-5 (1975) [many ref. En] Westport, Connecticut, USA; AVI Publishing Co. Inc. Price \$20 (US), \$21 (Foreign) [N. Regional Res. Lab., USDA, Peoria, Illinois, USA]

This book is comprised of selected papers from a Short Course on Fabricated Foods sponsored by the Agricultural and Food Chemistry Division of the American Chemical Society, held in Las Vegas, Nevada, on March 27-29, 1974. Chapters in the book are: Fabricated foods in perspective, by G. E. Inglett (pp. 1-6, 4 ref.); Fabricated foods in our economy, by K. Bird (pp. 7-12); Government regulations affecting fabricated foods, by O. C. Johnson (pp. 13-17); Strategic consideration behind fabricated foods development, by J. L. Holahan (pp. 18-22, 2 ref.); Marketing of fabricated foods, by N. R. Lockmiller (pp. 23-31, 9 ref.); Physical-chemical principles of food fabrication, by F. Franks (pp. 32-48, 18 ref.); Soy proteins for fabricated foods, by W. J. Wolf (pp. 49-67, 47 ref.); Carbohydrates for fabricated foods, by M. Glicksman (pp. 68-88, 38 ref.); Textures by extrusion processing, by O. B. Smith (pp. 89-108, 15 ref.); Sensory analysis: theory, methodology, and evaluation, by J. Sidel, A. Woolsey & H. Stone (pp. 109-126, 15 ref.); Texture properties and evaluations of fabricated foods, by M. C. Bourne (pp. 127-158, 42 ref.); Flavouring fabricated foods, by S. Kuramoto & I. Katz (pp. 159-169, 49 ref.); Nutritional aspects of fabricated foods, by G. M. Briggs (pp. 170-185, 11 ref.); Nutritional evaluation of fabricated foods, by C. Kies (pp. 186-195, 7 ref.); Protein considerations for fabricated foods, by D. Rosenfield (pp. 196-206, 7 ref.); and Vitamin and mineral fortification, by B. Borenstein (pp. 207-212, 8 ref.). JA

12

[Continuous line for the manufacture of dried synthetic cream.]

Kubicki, M.; Misicki, S.; Skrzypczak, A.

Tuszcze Jadalne 19 (1) 19-29 (1975) [4 ref. Pl] [Inst. Przemysłu Tłuszczowego, Warsaw, Poland]

The line consists of units for the concentration of skim-milk, addition of vegetable fat, emulsification, drying, instantization and packaging. STI

13

The stability of imitation milks prepared from corn oil.

Kako, M.; Sherman, P.

Milchwissenschaft 29 (12) 733-737 (1974) [17 ref. En, de] [Dep. of Food Sci., Queen Elizabeth Coll., Univ. of London, Campden Hill Road, London, W8, UK]

5% (by wt.) oil-in-water emulsions were prepared using maize oil and commercial grade emulsifier, Recodan RS (45% each of saturated mono- and diglycerides, and 10% hydrocolloid stabilizer containing sodium alginate, carrageenan and guar gum), and at 65°C were dispersed mechanically in reconstituted instant dried skim-milk, with sodium penicillin added as preservative. Stability of synthetic milk with 0.125-0.500% (by wt.) concn. of Recodan RS and 0.25-8.0% (by wt.) concn. of dried skim-milk was examined with respect to rate of fat globule coalescence and flow characteristics. It was concluded that although dried skim-milk could be used alone, stability was much improved with Recodan RS, with a critical ratio of dried skim-milk and Recodan RS being required for min. coalescence. Results are tabulated and also presented as a 3-dimensional graph. SAB

14

[Method for manufacturing edible fat from cream and vegetable fat.]

Olsson, I. T. H.

Swedish Patent Application 378 169 (1975) [Sv]

A butter-like fat composition which is spreadable at refrigerator temp. and, being less oxidation-sensitive, has a longer shelf life than butter is produced by churning cream to which preferably 20-30% (of the total amount) of a refined, tocopherol-containing, vegetable triglyceride oil, preferably soybean oil, has been added directly before churning. W&Co

15

Second nature: Mozzarella cheese replacement.

Petricca, A. V.

Snack Food 64 (4) 38-39, 49 (1975) [En]

[Glidden-Durkee Div., SCM Corp., Strongsville, Ohio, USA]

Mozzarella cheese replacement is composed primarily of edible vegetable oil, animal protein and flavouring, and has a nutritional value similar to that of the natural product. It can be prepared by culturing of milk substitute, by direct fabrication or by a combination of these 2 methods; a modified culture is likely to be required to obtain a flavour

approaching that of the natural cheese. With direct fabrication, ingredients can be selected to give the desired flavour, and physical and chemical processes can be controlled to maintain consistency of the product. CDP

16

Nutritive value and food uses of coconut skim milk solids.

Hagenmaier, R.; Lopitakwong, R.; Verasestakul, S. *Journal of Food Science* 40 (6) 1324-1325 (1975) [7 ref. En] [Food Protein Res. & Development Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Coconut skim milk concentrate had an observed corrected protein efficiency ratio of 1.98, compared to 2.11 for coconut meal and 1.67 for spray-dried coconut skim milk. An acceptable beverage was made with reconstituted coconut skim milk concentrate. An acceptable pudding was made with spray-dried coconut skim milk. IFT

17

Engineered ingredients: building blocks for food design.

Anon.

Food Engineering 47 (7) 46-47 (1975) [En]

Production, properties and uses of soy protein products (flours, grits, concentrates, isolates, extruded protein, spun protein) are discussed. Also considered are the use of hydrocolloids (starches, gums) in engineered foods, texturizing methods for foods, and the use of natural and imitation flavours in engineered foods. A flow diagram is given of a process for producing hydrolysed plant protein, and the composition of the protein is tabulated. The formulation of a non-dairy coffee whitener is cited to illustrate the approach taken when selecting ingredients for an engineered food. JA

18

Process for making simulated meat and cheese products.

Freck, J. A.; Kondrot, L. V. (American Maize Products Co.)

United States Patent 3 836 677 (1974) [En]

The process involves heating a mixture of high amylose material ($\geq 20\%$ and protein (e.g. casein) at a temp. high enough to gelatinize a substantial portion of the amylose but for a sufficiently short period to prevent serious loss of nutritive value (e.g. 240-250°F for 2-3 s). The high amylose material acts as a binder and reduces processing costs. EJM

19

Concentration of liquid foods in a pilot-scale falling film evaporator.

Saravacos, G. D.; Moyer, J. C.; Wooster, G. D. *New York's Food and Life Sciences Bulletin* No. 4, Food Science No. 2, 14pp. (1970) [21 ref. En] [New York State Agric. Exp. Sta., Geneva, New York, USA]

The construction of an experimental pilot-scale falling-film evaporator and its performance for evaporation of: water; unfiltered, filtered and depectinized apple juice; clarified, cold stored and cold pressed filtered grape juices; and soymilk are described. Emphasis is placed on physical and engineering aspects, i.e. evaporation rates, fluid flow, heat transfer and scale formation. Parameters studied include residence time, vapour velocity, liquid entrainment, heat transfer coeff., behaviour of non-Newtonian fluids. No increase in evaporative capacity was achieved by the Brock Turbulator. RM

20

[Microbiology of coconut milk.]

Uboldi Eiroa, M. N.; Freitas Leitao, M. F. de; Martin, Z. J. de; Kato, K.

Coletanea do Instituto de Tecnologia de Alimentos 6 (1) 1-10 (1975) [5 ref. Pt, en]

Microbial growth in and processing techniques for coconut milk were studied. Sterilized coconut milk with or without preservatives (e.g. SO₂ as sodium metabisulphite, potassium polysorbate) allowed growth of inocula of *Bacillus* spp., *Pseudomonas fluorescens*, *Escherichia coli*, *Streptococcus faecalis*, *Saccharomyces cerevisiae*, *Clostridium* spp., *Lactobacillus plantarum* and *Salmonella typhimurium*. Spoilage of the product occurred. Preservatives delayed but did not prevent microbial growth. Addition of 147 or 243 µg SO₂/ml delayed but did not arrest growth of *Cl. botulinum* types A, B and E. Of 45 commercial samples of coconut milk examined, 12 contained *Bacillus* spp. and 3 *Clostridium* spp. To achieve an F value of 5.0 required heating for 61 min at 115.6°C. Owing to the low acidity of the product (pH 5.5-6.1), pasteurization at <100°C is not sufficient to guarantee sterility; sterilization to F₀ = 3.0 is recommended if refrigerated storage is not employed. RM

21

[Processing and stability studies with coconut milk.]

Martin, Z. J. de; Uboldi-Eiroa, M. N.; Kato, K.; Silva, S. D. da; Leitao, M. F. F.; Angelucci, E.; Medina, J. C.

Coletanea do Instituto de Tecnologia de Alimentos 6 (1) 51-68 (1975) [17 ref. Pt, en]

A process described in detail (with the aid of a flow diagram) for producing coconut milk basically consists of the following stages: selection of nuts; washing in chlorinated water; manual cracking; removal of coconut water, shell and brown skin; grinding the pulp; extraction of coconut milk in a hydraulic press; heating the milk at 90°C for a few min; addition of emulsifiers and thickeners; homogenization at 300 kg/cm²; filling into 280-ml bottles; and sterilization at 115°C for 45 min. Coconut milk produced in this way and containing 0.3% Tween 80 as emulsifier and 0.4% carboxymethyl cellulose (CMC) as thickener was stored for 6 months at room temp. Samples were withdrawn at intervals and examined. Apart from a fall in viscosity between 30 and 90 days of storage (from

636.7 to 393.3 cP) the product remained physically, chemically and microbiologically stable during storage. Tween 80 was an efficient emulsifier and CMC an efficient thickener, preventing separation of phases. RM

22

Laboratory studies on the preparation of skim milk concentrate.

Buccat, E. F.; Gonzalez, A. L.; Claudio, T. R.; Manalac, G. C.

Philippine Journal of Science 103 (3) 175-185 (1974) [15 ref. En] [Nat. Inst. of Sci. and Tech., Manila, Philippines]

A method of preparing conc. coconut skim-milk from the wet by-product of coconut meat processing was developed. Skim-milk was pre-concentrated in a rotary flash evaporator to remove 50% of water and blended with sugar to prepare concentrates with varying final moisture and sugar levels: 10 or 15% sugar, 20, 25 or 30% water. Conc. products were hot-packed in sterile tin cans. Samples were tested fresh and at 2-weekly intervals during 6 months' storage. Results of chemical, organoleptic and microbiological analyses, shown graphically and in tables, showed that all 6 freshly prepared samples gave acceptable organoleptic scores and all were heavily contaminated (innumerable microbial colonies). Moisture and storage period had no effect on acidity of samples with 15% sugar but increased the acidity of 10% sugar samples. Organoleptic scores declined during storage, especially at high moisture contents. Samples containing 15% sugar and 20% water were acceptable even after 8 wk storage. Microbial population decreased to very low levels after 15 wk. The 15% sugar, 20% moisture product is creamy white, very viscous and can be diluted with ice cold water to twice its vol., giving a sweetened coconut drink. RM

23

[Organoleptic studies on the flavour of soy milk.]

Miya, E. E.; Pupo, L. M.; Chaib, M. A.; Angelucci, E.; Tango, J. S.; Figueiredo, I. B.; Tosello, Y.

Boletim do Instituto de Tecnologia de Alimentos, Brazil No. 42, 43-54 (1975) [10 ref. Pt, en]

A study was made of the organoleptic properties and composition of soybean milk made from 4 soybean var. (IAC-1, Santa Maria, Vicoja and Pelicano) by 5 methods ((i) the modified DEC method, and variations of this method in which the beans were (ii) ground in water at 80°C; (iii) soaked for 30 min in 0.04% NaHCO₃ solution; (iv) soaked in 0.08% NaHCO₃ solution for 12 min; or (v) soaked in 0.05N NaOH solution for 2 h). Organoleptic properties were assessed in triangle tests; samples prepared by method (iii) were preferred, followed by those prepared by method (iv). These treatments masked the soy flavour of the product. Soy milk from Santa Maria var. had the highest and that from Pelicano var. soybeans had the lowest acceptability in triangle taste tests. Tables of data are given for the total sugar, crude protein, lipid and amino acid concn. in the soy milks. AJDW



24

Manufacture of recombined whipping cream.

Zadow, J. G.; Kieseker, F. G.

Australian Journal of Dairy Technology 30 (3) 114-117 (1975) [10 ref. En] [Dairy Res. Lab., Div. of Food Res., CSIRO, Highett, Victoria, Australia]

The properties of recombined whipping creams manufactured from anhydrous milk fat, dried skim-milk and incorporating various additives have been examined. A blend of 35% butter oil, 7.5% medium-heat dried skim-milk and 0.1% glycerol monostearate is recommended. This formula is relatively insensitive to homogenizing pressures; 2-stage homogenization using conditions of 1.4-2.1 MPa on the first stage, and 0.7 MPa on the second stage, at 48°C, was found to be satisfactory on the homogenizers used. The properties of the recombined cream produced were not markedly influenced by changes in pH in the range 6.4-6.8 or by the medium-heat dried skim-milk employed. The formulation is also suitable for manufacture of an UHT recombined whipping cream. AS

25

Liquid casein substitute.

Kumar, S.; Ramachandran, K. S. (Quaker Oats Co.)

United States Patent 3 917 877 (1975) [En]

An aqueous slurry of vegetable protein material with a pH 7.0-10.5 by virtue of the addition of an alkali metal carbonate is heated to 280-370°F for ≤ 5 min to react the protein with the carbonate, and the composition is neutralized. IFT

26

Simulated casein.

Kumar, S.; Ramachandran, K. S. (Quaker Oats Co.)

United States Patent 3 917 878 (1975) [En]

An aqueous slurry of vegetable protein material with a pH 7.0-10.5 by virtue of the addition of an alkali metal carbonate is heated to 280-370°F for ≤ 5 min, neutralized, dried to remove a substantial portion of the water and mixed with a proteinaceous material which has not been modified by reaction with an alkali metal carbonate. IFT

27

Casein substitute.

Kumar, S.; Ramachandran, K. S. (Quaker Oats Co.)

United States Patent 3 917 879 (1975) [En]

An aqueous slurry of protein vegetable material with a pH 7.0-10.5 by virtue of the addition of an alkali metal carbonate is heated to 280-370°F for ≤ 5 min, neutralized and mixed directly without drying with a proteinaceous material which has not been modified by treatment with an alkali metal carbonate. IFT

28

The idea, which became a world-project. [Lecture] Rausing, H.

Nordeuropacisk Mejeri-Tidsskrift 41 (9) 307-314 (1975) [En, Da, De] [Tetra Pak AB, Lund, Denmark]

The author deals with developments in the Tetra Pak system of milk packaging and the effects of aseptic packaging on distribution and products development. He mentions aseptically packaged soybean milk produced in S. E. Asia, Brazilian school milk based on soy protein and having chocolate taste, and the possibility of hydrolysing lactose in UHT milk with lactase for consumption by populations suffering from lactose intolerance. FL

29

American cheese alternate acceptable in child-feeding program.

Taylor, K. M.; Wilson, A. K.

Food Product Development 9 (3) 62, 65-66 (1975) [6 ref. En] [Dep. of Food & Nutr., Univ. of Wisconsin, Madison, Wisconsin, USA]

Cheese alternates were approved for use by federally assisted child nutrition programmes in Aug., 1974, when combined with 50% natural cheese in formulation. The quality and acceptability of 2 fondue cheese sauces (one made with 100% processed American cheese and the other with 80% American cheese alternate and 20% processed American cheese) were evaluated. Acceptability was noted at the 80% replacement level which should predict acceptability at the 50% level used in child programmes. Tabulated data present: the nutritional analysis of a 2 oz serving of Unique Loaf (the cheese alternate) and of processed cheese; recipe proportions for fondue cheese sauces; and the mean colour and colour difference values for cheese fondues. VJG

30

Preparation of a cheese-like fermented food.

Kubota, H.; Tateishi, T. (Fuji Oil Co. Ltd.)

United States Patent 3 873 729 (1975) [En]

An interesterified, synthetic fat is obtained by mixing mono-lower alcoholic, glycolic, or glycerine esters of caproic, caprylic, capric and lauric acids with natural oils and fats, and then refining the esterification product. The cheese-like food is obtained by mixing the synthetic fat (up to 18% by wt.) with milk solids (up to 15% by wt.) to form an emulsion, adding starter and incubating, followed by normal cheesemaking procedure. It is claimed that the imitation cheese develops a typical cheese flavour after 3 months' ripening. EJM

31

Preparation of a simulated milk product.

Arndt, R. H. (Ralston Purina Co.)

United States Patent 3 873 751 (1975) [En]

A mixture containing preferably 11-25% (by wt.) of isolated soy protein and 75-84% of sweet dairy whey is pH adjusted to preferably 6.2-6.9 with a food grade alkaline detergent and the suspension, containing 5-45% TS, heated to 220-400°F by vapour flash treatment to remove objectionable flavours and odours. The product is preferably flash-dried and may be used as a substitute for dried skim-milk in bakery products. EJM

32

Food flavour pellets with wheat flour, soy flour and buttermilk base.

Huussy, E. G. (Peavey Co.)

United States Patent 3 857 977 (1974) [En]

An example for a typical composition for the product, which is regarded essentially as an imitation cheese, is as follows: wheat flour, 27.08%; hydrogenated vegetable oils, 18.06%; dried buttermilk, 18.06%; maize syrup solids, 9.03%; whey, 9.03%; soy flour, 4.51%; salt, 3.97%; water, 3.61%; plus smaller amounts of glycerine, flavouring, lactic acid, garlic powder and xanthan gum. EJM

33

Illinois process for preparation of soymilk.

Nelson, A. I.; Steinberg, M. P.; Wei, L. S.

Journal of Food Science 41 (1) 57-61 (1976) [19 ref. En] [Dep. of Food Sci., Univ. of Illinois, Urbana, Illinois 61801, USA]

A beverage consisting of water, whole soybeans (including hulls), sugar and flavour has been developed. Preparation includes soaking and then blanching the whole soybeans in 0.5% sodium bicarbonate, grinding with water in a hammermill, heating the slurry to 200°F, homogenizing, neutralizing, dilution, addition of sugar and flavour, pasteurizing and re-homogenizing. Enzyme inactivation by blanching prior to grinding of soaked beans was found to completely prevent formation of painty (oxidized) flavour and result in a bland flavoured product. Trypsin inhibitors were also inactivated by blanching. A sufficient degree of tenderization of soybean tissue during the soak and blanch treatments was necessary to obtain good mouth feel and colloidal stability. Homogenizing conditions such as temp. and pressure were also important; when the soybeans had been blanched to a Lee-Kramer Tenderometer reading of 300 lb or below and homogenization was done at 200°F and 3500 lb/in², the resulting beverage showed zero separation after 2 months' refrigerated storage. Dilution to <1% protein had no effect on colloidal stability. Coulter Counter measurements of the beverage indiemp. and pressure were also important; when the soybeans had been blanched

to a Lee-Kramer Tenderometer reading of 300 lb or below and homogenization was done at 200°F and 3500 lb/in², the resulting beverage showed zero separation after 2 months' refrigerated storage. Dilution to <1% protein had no effect on colloidal stability. Coulter Counter measurements

34

Effect of sodium alkalis and salts on pH and flavor of soymilk.

Bourne, M. C.; Escueta, E. E.; Banzon, J.

Journal of Food Science 41 (1) 62-66 (1976) [12 ref. En] [New York State Agric. Exp. Sta., Cornell Univ., Geneva, New York 14456, USA]

NaOH, Na₂CO₃ and NaHCO₃ were added to soymilk made by the 'boiling-water grind' process. NaOH caused a rapid increase, Na₂CO₃ a moderate increase and NaHCO₃ a slight increase in pH. After sterilization in bottles the pH of the soymilks containing alkali decreased, with the decrease least with NaHCO₃ treatment and greatest with NaOH treatment. pH of untreated soymilk did not change during sterilization. An experienced taste panel showed greater acceptability for soymilk adjusted to pH 7.0-7.5 with NaOH but noted a soapy flavour and gave lower scores for milks with pH >7.5. Soymilks adjusted to pH 7.0-7.5 with Na₂CO₃ or NaHCO₃ were disliked by the panel. It is theorized that the improved acceptability with NaOH could be due to the increase in Na⁺ concn. rather than the change in pH. Soymilks prepared with Na₂CO₃, NaHCO₃, NaNO₃, Na₂SO₄, sodium acetate and sodium citrate additions at the same levels as that amount of NaOH required to raise the pH to 7.2 were given approx. the same scores by the panel as the NaOH-treated sample even when the pH was not in the range 7.0-7.5. This evidence supports the theory that Na⁺ concn. is the effective mechanism in importing the flavour of soymilk rather than the change in pH. IFT

35

Coagulation properties of soybean milk.

DeMan, J. M.; Tanaka, M.; Stanley, D. W.

Canadian Institute of Food Science and Technology Journal 8 (1) 9-11 (1975) [4 ref. En, fr] [Dep. of Food Sci., Univ. of Guelph, Guelph, Ontario, Canada]

The coagulation properties of 55 samples of soybean milk with CaSO₄ solution as coagulant were investigated. Clotting time of the soymilks was determined with an automatic clot timer and gel strength was measured with a plate compression test. With few exceptions, clotting times were in the order of 10-50 s. Clotting time decreased with age of the soymilk. Addition of phosphates and citrate prolonged the clotting times of soymilk. All samples produced a firm gel even when the soymilk was 3 days old. AS

36

Composition of Ontario soybeans and soymilk.
deMan, J. M.; Stanley, D. W.; Rasper, V.
Canadian Institute of Food Science and Technology Journal 8 (1) 1-8 (1975) [4 ref. En, fr] [Dep. of Food Sci., Univ. of Guelph, Guelph, Ontario, Canada]

Proximate analysis was performed on 55 samples representing var. of Ontario grown soybeans. All the samples were made into soymilk and the composition determined. In addition to gross composition (moisture, fat, protein and crude fibre), the content of P, Ca and Mg was measured. Soymilk was subjected to ultrafiltration, and the diffusate analysed for soluble constituents. All results are presented in the form of frequency distribution charts. Increased protein levels were correlated with decreases in fat content. Soluble carbohydrates in the diffusate were determined by GLC of the trimethylsilyl derivatives; sucrose was the predominant sugar. AS

37

Spreadable fats.

Bruncke, R.; Schmalfeldt, B.; Widera, S.; Lange, J.
British Patent 1 403 745 (1975) [En]

The process for the manufacture of a low-fat spreadable butter without the use of emulsifiers involves adjusting the fat content of a fat-in-water type emulsion to 35-65% and cooling to <25°C with simultaneous mechanical treatment to produce the phase-reversal into water-in-fat. The fat emulsion may be cream or butter or their mixture with optional addition of animal or vegetable fats. Salt and flavouring and colouring agents are added as desired. The application of the process is described in 6 examples. FL

38

Preparation of simulated human milk.

Grutte, F. K.; Schulze, J.; Hampel, H. G. (German Democratic Republic, Akademie der Wissenschaften der DDR)

United States Patent 3 896 240 (1975) [En]

The process involves: treating whey with an anion exchange resin, charged with chloride ions so as to remove substantially all anions of weak acids from the whey; adding to the treated whey the washed and filtered skim-milk protein obtained following precipitation of skim-milk in HCl solution at pH 4.4-5.1, preferably 4.7; adding fats, minerals and vitamins to the whey-protein mixture; homogenizing the resultant mixture; spray-drying it; and adding commercial lactose powder and starch in such amounts that the reconstituted milk contains 6% (by wt.) of lactose and 2% of wheat starch. The simulated human milk composition when reconstituted ready for drinking, has a caloric value of 69 kcal/100 ml, and contains 1.7% protein, 3.5% fats, 8.0% carbohydrates and 0.3% minerals. EJM

39

[Use of cheese whey in enriched new food products.]

Badui, S.

Tecnologia de Alimentos 9 (3) 132-136 (1974) [6 ref. Es, en]

Three recipes are given for producing high-protein, low-cost beverages from cheese whey and soybean milk or defatted soy flour. RM

40

Modified vegetable protein simulating casein.

Kumar, S.; Ramachanran, K. S.

United States Patent 3 930 058 (1975) [En]

41

[Biotechnology - aims, basic principles, process technology.] Biotechnologie: Aufgaben,

Grundlagen, Verfahrenstechnik.

Scheuermann, E. A.

Ernährungswirtschaft No. 11, 704, 706-708, 710-714; No. 12, 761-764 (1975) [23 ref. De] [Sci. Relation Service, Öhningen, Federal Republic of Germany]

Fermentation technology is discussed, with special reference to production of bacterial, yeast and algal proteins for use in foods and feeds. Marketing and utilization of microbial proteins is discussed: possibilities include manufacture of simulated foods (e.g. simulated meat), utilization without further treatment (except addition of flavourings, etc.) and use for fortification of foods (e.g. bread, noodles, milk). IN

42

Method of making protein food products resembling cheese.

Boyer, R. A. (Ralston Purina Co.)

United States Patent 3 891 777 (1975) [En]

The manufacture of imitation processed cheese products, based on isolated soybean protein, is described. Some of the examples incorporate one or more of the following natural dairy constituents: dried cheese, sodium caseinate, or high acid buttermilk solids. EJM

43

Method of making protein food products resembling cheese.

Boyer, R. A. (Ralston Purina Co.)

United States Patent 3 891 778 (1975) [En]

The specification covers the manufacture of imitation cheese spreads based on defatted soybean meals. Examples are given for spreads incorporating sodium caseinate, high acid buttermilk solids, and natural cheese flavour. EJM

44

[Effect of frozen storage on the physicochemical properties of protein in soybean milk.]

Kawaguchi, Y.

Journal of the Japanese Society of Food and Nutrition [Eiyo to Shokuryo] 28 (6) 337-342 (1975) [8 ref. Ja, en] [Yamanashi Prefectural Agric. & Forestry High School, Ryuo-cho, Yamanashi, Japan]

During frozen storage, protein particles of soybean milk became slightly smaller in size and tended to cohere as the period of storage became longer. Most cohered insoluble precipitates considered of acid-soluble N compounds. On elution by Sephadex gel filtration, it became clear that unfrozen soybean protein was not bound with inorganic P but simultaneous elution of these occurred after freezing of soybean milk, suggesting binding of Ca and P to soybean protein particles. Effect of several reagents on the solubilization of stored frozen soy protein was examined. Results indicated that addition of sodium dodecyl sulphate was effective in solubilizing the heat- and acid-precipitated fraction in a mixture of urea and mercaptoethanol or mercaptoethanol alone. Results suggest the formation of hydrophobic, disulphide, H and ionic bonds among protein particles. AS

45

[Artificial vegetable milk.]

Shmanenkov, N. A.; Sadokova, A. P.; Kalenyuk, V. F.

Nauchnye Trudy, Vsesoyuznyi Nauchno-issledovatel'skii Institut Fiziologii, Biokhimii i Pitaniya Sel'skokhozyaistvennykh Zhivotnykh 13, 264-271, 421 (1974) [21 ref. Ru, en] [VNIIFBPSKhZh, Borovsk, USSR]

Preparations described as 'destructates of protoacids of vegetable proteins' made from peas, castor beans, 'china' (vetchling) and potato haulms were used as a basis in production of artificial milk. They are said to be very similar in amino acid composition to 'casein protoacid' [see Sadokova et al., *Nauchnye Trudy, Vsesoyuznyi Nauchno-issledovatel'skii Institut Fiziologii, Biokhimii i Pitaniya Sel'skokhozyaistvennykh Zhivotnykh* (1972) 11, 140 & 145]. The artificial milk recipe was: 4 g vegetable protein, 90 ml salt solution containing 0.1 g NaCl, 0.1 g KCl, 0.5 g K₂HPO₄, 3.2 ml N NaOH, 3 ml M CaCl₂, 4 ml vegetable fat and 5 g sugar (not specified); the mixture was emulsified in a laboratory blender. It is stated that the preparations converted by NaOH into 'sodium proteinates' possessed high surface activity and formed a membrane around dispersed fat globules (photomicrographs presented); and that the mineral composition of the artificial milk and the proportion of protein-bound Ca were the same as in cows' milk. SKK

46

Imitation milks and milk products. [Review]
Mann, E. J.

Dairy Industries International 41 (3) 88-89 (1976) [17 ref. En] [Commonwealth Bureau of Dairy Sci. & Tech., Lane End House, Shinfield, Reading RG2 9BB, UK]

47

Food additives. Lactylic esters of fatty acids.
United States of America, Food & Drug Administration

Federal Register 40 (299, Nov. 26) 54 777 (1975)
[En] [Washington, DC, USA]

The use of lactic esters of fatty acids under the Federal Food, Drug, and Cosmetic Act is expanded to include any edible vegetable fat-H₂O emulsion used as a substitute for milk or cream in beverage coffee so as to include all physical forms such as dry, frozen, and liquid coffee whiteners. CAS

48

Pourable cream concentrate.

Penning, H. J.; Herendi, N. (Lever Brothers Co.)
United States Patent 3 883 670 (1975) [En]

A typical example of a product is composed of a blend of fats (sunflower oil, coconut oil, partly hydrogenated soybean oil and hydrogenated palm oil), 44.30% (by wt.); monoglycerides of saturated C16-C18 fatty acids, 0.32%; lecithin, 0.30%; carrageenan, 0.03%; and sorbitol, 8.40%. The concentrate remains microbiologically stable for about 6 wk at ambient temp. and can be diluted with milk to provide a whippable cream. EJM

49

Texture-structure relationships in new protein foods.
deMan, J. M.

Cereal Foods World 21 (1) 10-13 (1976) [4 ref. En] [Dep. of Food Sci., Univ. of Guelph, Guelph, Ontario, Canada]

Spinning and extrusion methods for texturising proteins are briefly described. An experiment was conducted using freezing as the agent in texturising soy curd, in a fashion similar to the production of kori-tofu in Japan. This involves freezing, ageing, thawing, pressing, drying and ammonia treatment. Water sorption was observed, and the structure examined by scanning electron microscopy. It is concluded that freeze texturing can produce a wide range of properties suitable for a variety of applications. JRR

50

Soybean odor improvement.

Osaka, M.; Hashimoto, Y. (Fouji Oil Co. Ltd.)
United States Patent 3 937 843 (1976) [En]

Eliminating beany odour from soy milk comprises lactic fermentation of the milk containing added saccharide until the acidity is ≤ 4 , followed by distillation at reduced pressure. IFT

51

Protein value of two imitation milks.

Mitchell, M. E.; Hu, M.

Journal of the American Dietetic Association 67 (6) 564-569 (1975) [22 ref. En] [Home Economics Res. Cent., Washington State Univ., Pullman, Washington, USA]

The protein quality of 2 imitation powdered milk products was compared with whole cow's milk (WM) using chemical and rat bioassay methods. Imitation milk A (IMA) was received as a base and mixed thoroughly with coconut oil and a stabilizer-additive. Listed ingredients included sodium caseinate, lactose, demineralized whey and calcium gluconate. Listed ingredients for imitation milk B (IMB) included modified cereal protein and cottonseed oil and soybean oil blend. Tabulated data present principal nutrients (protein, fat, lactose and Ca) of WM, IMA and IMB; and the amino acid composition of WM, IMA, IBM and dried cow's milk. Respective % for US RDA for protein of WM, IMA and IBM for 1 glass of reconstituted fluid milk would be 17.3, 10.9 and 9.7%. Neither imitation milk was equivalent to whole milk when a reconstituted serving of the product was calculated in terms of the US RDA. A single serving of either IMA or IMB would constitute 10% of the US RDA for protein. Ca contribution in terms of US RDA would also be significant, but would not equal whole milk. VJG

52

A new blue cheese food material from ultrafiltrated skim milk and microbial enzyme-mold spore reacted fat.

Jolly, R. C.; Kosikowski, F. V.

Journal of Dairy Science 58 (9) 1272-1275 (1975) [16 ref. En] [Dep. of Food Sci., Cornell Univ., Ithaca, New York 14853, USA]

The object of this work was to develop a simple ultrafiltration method for producing a typically flavoured Blue cheese food without visible *Penicillium roqueforti* mycelium. The method consisted essentially of concentrating pasteurized skim-milk by ultrafiltration to 45-50% TS in 5 h, and mixing with a lipase/spore preparation obtained by incubating *Aspergillus oryzae* lipase, *P. roqueforti* spores and a commercial lactic culture (to ensure acid pH) in pasteurized heavy cream (40% fat) for 49 h at 20°C. The mixture was heated to 77°C for 3 min, packaged and chilled. Butterfat could be replaced wholly or partly by pure coconut fat. The whitish product had a flavour and aroma similar to that of good quality Blue cheese; protein and TS contents were similar to those of natural Blue cheese, but fat and salt were significantly lower and free volatile acids were higher. The predominant methyl ketones were heptanone and nonanone, which reached levels of 25.7 and 10.3 µmol/g dry wt. respectively in the product containing butterfat and 43 and 18 µmol/g dry wt. in that containing coconut fat. [See also FSTA (1975) 7 8P1907 & 11P2452.] CDP

53

Coffee whitener.

Gilmore, C.; Miller, D. E. (SCM Corp.)

United States Patent 3 935 325 (1976) [En]

A fluid coffee whitener with enhanced freeze-thaw stability and improved whiteness comprises 5-18% vegetable fat, 1-3% vegetable protein, 5-15% sweetener and a specified blend of emulsifiers. IFT

54

Preparation of yoghurt from soybean meal.

Fridman, E. (Centre for Industrial Research Ltd.)

United States Patent 3 950 544 (1976) [En]

A non dairy yoghurt is prepared by leaching soybean meal with an aqueous solution at pH 4-5 to remove sugars, leaching the residual sugar-free cake with an aqueous solution at approx. pH 7 to dissolve the protein material adjusting pH of protein containing filtrate to 6.5-7.0, adding sugar to the filtrate and homogenizing to produce soy milk, which is sterilized at approx. 116°C and fermented with a lactic culture to produce yoghurt. GL

55

Soy milk.

Drachenberg, F. G.; Allred, P. E.

United States Patent 3 941 890 (1976) [En]

Manufacture of soy milk involves cooking with microwaves to substantially destroy trypsin inhibitors without any appreciable roasting of the material. IFT

56

Process for the manufacture of soybean protein products.

Fridman, E.; Dolev, A. (Centre for Industrial Research Ltd.)

United States Patent 3 944 676 (1976) [En]

An aqueous solution is used for leaching soybean meal. Solid residue is separated from the extract, which is adjusted to pH 6.5-7.0 and sterilized to destroy antidigestive factors and reduce beany flavour. A lactic culture of *Streptococcus thermophilus*, *Lactobacillus arabinosus*, *Lactobacillus casei* or a mixture of these is used to ferment the soy milk, and the soy curd is separated. GL

57

[Fat emulsions.]

Fuji Oil Co.

Japanese Patent 5 106 161 (1976) [Ja]

Mixtures of oils, lecithin and sugar esters are emulsified with milk to form imitation cream products. IFT

58

Engineering 'milk'.

Anon.

Food Engineering 47 (10) EF6-EF9 (1975) [En]

A simulated milk consisting of a mixture of sweet whey, full-fat soya flour, soya bean oil, maize syrup solids, vitamins and minerals has been developed; it

contains 20% protein and 20% fat, and is approx. equivalent to whole milk when it is reconstituted to 15% solids (by wt.). One-day and long-term acceptability trials were carried out on mothers and children in Chile, Dominican Republic, South Vietnam, India, Pakistan and Sierra Leone. Only in Sierra Leone, where most children in the test area were accustomed to consuming skim-milk in dry form as a porridge rather than in liquid form, was the whey/soya mix found to be unacceptable.
CDP

59

[A new process for the extraction of soy milk.]

Ferreira, E.; Marcondes Borges, J.; Coutinho Mendes, A. C.

Revista CERES 21 (117) 422-425 (1974) [5 ref. Pt, en] [Dep. of Food Tech., Univ. Fed. de Vicosa, Vicosa, Minas Gerais, Brazil]

A new method developed to produce soybean milk consists of heating the beans in an open pan with steam to 60°C, cooling to 35°C, and milling to separate the husks and produce a soy flour. Water and soy flour in the ratio 9:1 are then mixed for 5 min while cool, and boiled for 15 min before straining. Sugar, margarine and a little soy milk are mixed thoroughly, then added to the bulk of the liquid which can then be cooled and served. Taste panel and school children acceptance tests of the milk prepared in this way have been favourable.
JRR

60

Inconsistencies in FDA's application of the term 'imitation'.

Sarett, H. P.

Food Product Development 10 (1) 26, 28 (1976) [18 ref. En] [Nutr. Sci. Resources, Mead Johnson Res. Cent., Evansville, Indiana, USA]

The FDA regulations on application of the term 'imitation' to foods, define conditions under which this term need not be applied. Consideration is given to inconsistencies in the application of this term, with particular reference to imitation milks and ice cream substitutes, textured vegetable protein, non-carbonated breakfast beverage products, fortified hot breakfast cereals, frozen 'heat-and serve' dinners, enrichment of flour and enriched macaroni with fortified protein. Other loopholes in the FDA regulations relate to essential nutrients and significant levels of nutrients. VJG

61

Yoghurt production by *Lactobacillus* fermentation of soybean milk.

Kanda, H.; Wang, H. L.; Hesseltine, C. W.; Warner, K.

Process Biochemistry 11 (4) 23-25, 46 (1976) [10 ref. En] [N. Regional Res. Lab., USDA, Peoria, Illinois 61604, USA]

The flavour of a soybean milk yoghurt was improved by soaking the beans for 16 h in water at

20°C, boiling in 0.2% NaHCO₃ solution for 5 min, washing, blending with water to give 8:1 water/dry bean ratio, ultrasonic treatment (20 kHz/10 min) and centrifuging (3000 rev/min for 5 min). Effects on the titratable acidity and texture of experimental soybean yoghurts of addition of cheese whey solids (0-4%), heat treatment (90, 100, 121°C for 10 or 20 min) and protein content (2.8-4.5%) are recorded. Best results were obtained by heating together 500 ml soybean milk, 10 g whey solids and 25 g sucrose at 100°C for 20 min, rapid cooling with addition of 1% gelatin (to prevent whey separation) and desired flavouring (e.g. lemon), 5% inoculation with a 1:1 mixture of B-1910 and B-2092 *Lactobacillus acidophilus*, and incubation at 37°C for 24 h. Taste panel evaluation of the yoghurt was favourable, with a score of 6.0 (of 10) vs. 4.5 for yoghurt from traditional soymilk. AL

62

Flavor acceptability of unfermented and lactic-fermented soy milks.

Mital, B. K.; Steinkraus, K. H.

Journal of Milk and Food Technology 39 (5) 342-344 (1976) [11 ref. En] [Cornell Univ., New York State Agric. Exp. Sta., Geneva, New York 14456, USA]

Soy milks prepared from whole Harosoy soybeans by a hot grind process and milk prepared from soybean flour defatted by a Cornell University patented process [FSTA (1973) 5 8J1171] were evaluated for flavour acceptability by a 27-member taste panel at the New York State Agricultural Experiment Station using fresh homogenized cows' milk as standard. Hot grind soy milk was rated significantly different and distinctly inferior to cows' milk in flavour. Soy milk prepared from defatted flour by aqueous extraction and addition of 2.5% refined soy oil and 2% sucrose was rated slightly inferior to fresh cows' milk in flavour. Soy milk from the defatted flour was also lactic fermented to prepare a yoghurt-like product whose flavour acceptability was compared with that of fermented cows' milk. The fermented soy milks had a satisfactory gelatinous curd and an acceptable flavour; however, the taste panel preferred the higher acidity of the fermented cows' milk. AS

63

Studies on fermented soymilk products. II. Effect of soymilk processing factors on the acid production by lactic acid bacteria in soymilk.

Kothari, S. L.

Indian Journal Microbiology 13 (2) 109-117 (1973) [15 ref. En] [Dep. of Food Sci. & Tech., G. B. Pant Univ. of Agric. & Tech., Pantnagar, Uttar Pradesh, India]

A study was made of the effect of soaking time of soybeans (0-168 h), method of conditioning of soybeans (unconditioned, cooked in boiling water for 20 min, or cooked in boiling water containing 0.3% NaHCO₃ for 20 min), grinding time (3-9 min),

and soybean var. (Bragg, Clark-65, Hardey, Hood, Lee, Pb-I, S-13) on acid production by 4 single-strain cheese starters (*Streptococcus lactis*, *Str. cremoris*, *Str. diacetylactis*, lactic fermentor) and 2 yoghurt cultures (*Str. thermophilus* and *Lactobacillus bulgaricus*). *Str. cremoris*, lactic fermentor, *Str. diacetylactis* and *L. bulgaricus* produced most acid in soymilk from var. Bragg; *Str. lactis* produced most acid in var. Hood soymilk and *Str. thermophilus* in var. Pb-I soymilk. Optimum acid production was achieved with soaking times of 6-12 h and a grinding time of 7 min. More acid was produced by soymilk from unconditioned (raw) beans than from cooked beans. Addition of 1% lactose to soymilk enhanced acid production, particularly by the cheese starters. JA

64

Storage of frozen coconut pulp and quality of coconut milk extracted.

Cancel, L. E.; Rivera-Ortiz, J. M.; Hernandez, E. R. de

Journal of Agriculture of the University of Puerto Rico 60 (1) 99-104 (1976) [8 ref. En, es] [Food Tech. Lab., Agric. Exp. Sta., Mayagüez Campus, Univ. of Puerto Rico, Rio Piedras, Puerto Rico]

Fresh coconuts were husked, heated, pulped, weighed into 8.16 kg lots, bagged in polyethylene and stored at -10°C for up to 1 yr. Samples were comminuted and pressed to obtain coconut milk and press-cake for analysis. For organoleptic evaluation, the coconut milk was used to prepare tembleque (a dessert containing corn starch, sugar and seasoning). Results are tabulated. Average storage wt. loss/lot was 0.13 kg. Average milk yield from frozen pulp was 49.6% of yield from unfrozen pulp. Fat in the press-cake from frozen pulp was 15% higher than from unfrozen and fat in milk decreased to 1.8% of the amount in control milk. Total solids in milk were 23.0% of the TS from unfrozen pulp. Heating of the comminuted pulp before pressing increased yield and improved composition of the milk. Organoleptic results from the tembleque that pulp could be stored frozen for up to 1 yr without undergoing flavour-impairing changes. CRI

65

Preparation of simulated cheese.

Bell, R. J.; Wynn, J. D.; Denton, G. T.; Sand, R. E.; Cornelius, D. L. (Anderson, Clayton & Co.)
United States Patent 3 922 374 (1976) [En]

It is claimed that foods resembling pasta filata, Cheddar or pasteurized processed American-type cheese can be prepared economically by forming a substantially gas-free homogeneous blend of (i) 12-35% of fat with a Wiley mp of 90-110°F; (ii) 15-33% of Ca- and/or Na- caseinate; (iii) up to 5% of ungelatinized flour; (iv) 0.5-1.8% of adipic, lactic, citric or malic acids, or combinations of such acids; and (v) water. The food has a pH of 4.8-5.7 and also includes appropriate colouring and flavouring materials. The mode of in situ preparation of the

caseinates in step (ii), including the use of acidified water and 80/90 mesh casein, is important for the success of the process. EJM

66

[Present prospects for utilization of vegetable protein concentrates in human food.]

Cantafora, A.

Rivista della Società Italiana di Scienza dell'Alimentazione 4 (7/8) 286-289 (1975) [It]

Present methods available for processing soybean to produce full fat and defatted flours, spray-dried protein concentrates and textured proteins, with soybean oil and by-products are reviewed. Applications (mainly in USA) are discussed for complete or partial substitution of protein derived from meat or milk, and for increasing the protein content (particularly lysine) of pasta products. Partial replacement of milk (e.g. by 10%) has been successful in some school meal schemes, with complete replacement by soy milk for children allergic to cow's milk. Problems have been concerned mainly with flavour, contents of raffinose and stachyose, and a tendency to develop abnormal microbiological floras. However an artificial milk based on soy protein, sugar, added flavours and vitamins has achieved considerable commercial success in Eastern countries. Partial a substitution of milk protein has achieved some measure of success with cheese product, ice cream, dairy desserts and yoghurts. Vegetable protein (as pastes or spun fibres) is now incorporated to an increasing extent in sausage and hamburger-type products; a quoted recipe incorporates 21% hydrated vegetable protein. Major problems associated with soy protein are flavour acceptance and digestion (flatulence). ELC

67

[Powdered soybean milk.]

Nisshin Oil Mills Ltd.

Japanese Patent 5 112 698 (1976) [Ja]

Soybean are extracted with water in the presence of ascorbic acid and the composition spray-dried after adjustment of pH and removal of residue. IFT

68

Modern dairy products. [Book]

Lampert, L. M.

Ed. 3, 437pp. ISBN 0-900379-22-7 (1975) [many ref. En] London, UK; Food Trade Press Price £13.50

This is a 3rd revised edition of the book reviewed in FSTA (1972) 4 1P23. It gives a semi-technical introduction to broad aspects of the dairy industry. The first 10 chapters are concerned with milk constituents, dairy microbiology and sanitation, milk contaminants and flavour defects. The next 10 chapters describe the manufacture of milk products (fresh, cultured and dried) and milk testing methods. The final chapter considers imitation milk products and milk substitutes. MEG

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FAB 7

SYNTHETIC DAIRY PRODUCTS

SELECTED FROM VOLUME 9

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of

Commonwealth Agricultural Bureaux, Farnham Royal, Bucks; Institut für Dokumentationswesen, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen; Zentralstelle für maschinelle Dokumentation—Frankfurt am Main.

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H. BROOKES

ASSISTANT EDITOR

1

Food in the future. [Lecture]
Durham, K.

Food Industries of South Africa May, 41-45
(1976) [En]

The future of fabricated or synthetic foods is examined critically in terms of economics of production and potential benefits. It is concluded that a radical change in methods of food production is not foreseeable, and major areas of advance predicted are those of new animal protein sources (fish-farming, plankton etc.), the conversion of waste materials into foods and the increased use of vegetable proteins. JRR

2

Soy isolate imparts functionality of caseinates.
Anon.

Food Processing 37 (6) 75-76 (1976) [En]

A soy isolate is described which has been produced to replace entirely caseinates in coffee whiteners and whipped toppings. The isolated protein is a water dispersible sodium proteinate, 90% protein (DM basis) with a bland flavour and good whipping and emulsifying characteristics. JRR

3

[Uses of soy proteins in pastry, confectionery and dietary products.] [Lecture]

Caers, A.

Revue Francaise des Corps Gras 23 (2) 81-86
(1976) [Fr, de, en, es] [Soc. Goorden,
Schoten/Antwerp, Belgium]

The uses and effects of soy flour in pastries, confectionery and cream are reviewed. Advantages include improved dough structure, increased vol. (owing to fat emulsification), longer shelf-life (owing to high sugar content, presence of antioxidants, high protein content), greater dough stability, high quality products at relatively low cost, improved microbiological stability (owing to low equilibrium RH). In most applications the advantages of soy flour are attributable mainly to the water absorption of the proteins, which ensure good distribution of lipid and stabilize the exchange of moisture between the cooked product and ambient air. Absorption of fat on the protein produces a whipping cream and homogeneous distribution of fat in the aqueous phase. RM

4

Specialty fats. [Lecture]
Paulicka, F. R.

Journal of the American Oil Chemists' Society 53
(6) 421-424 (1976) [En] [Chem. Res. Dep.,
Foods Res. & Development, Glidden-Durkee Div.
of SCM Corp., Dwight P. Joyce Res. Cent.,
Strongsville, Ohio, USA]

Production technology for hard 'butters' is briefly reviewed with emphasis on principal raw materials and processing. Technologies used are hydrogenation, interesterification, replacement or

reesterification, and fractionation. Composition and thermal properties of various hard butters (from soybean, palm kernel, coconut, palm, shea, and illipe oils) are described and tabulated, and their uses in confectionery and imitation dairy applications are mentioned. [See FSTA (1977) 9 1N27.] AL

5

The effect of cooling technique on continuous churning of cream-vegetable oil mixtures.

Con Foo, R.

Australian Journal of Dairy Technology 31 (1) 19-21 (1976) [10 ref. En] [Gilbert Chandler Inst. of Dairy Tech., Dep. of Agric., Werribee, Victoria, Australia]

The influence of 3 cooling regimes (slow cooling from 15.1° to 6.2°C or direct cooling from 6.7° to 4.1°C in the holding vat, or shock cooling on a plate heat exchanger to 1°C below (churning temp.) on the moisture level of the product obtained by continuous churning of a mixture of cream and soybean oil was studied. The vegetable oil content was 20% of the total fat in the mixture. A mean temp. rise of 4.4-4.8°C was found on churning. Mean moisture contents for slow, direct and shock cooling treatments were 14.5, 15.1 and 15.8% respectively; the corresponding values for buttermilk fat were 3.0, 3.1 and 2.3%. The slow cooling technique gave a product with lowest moisture content, shortest processing time and most practical churning temp. MEG

6

Oxidative flavour stability of milk fat-vegetable oil blends.

Black, R. G.

Australian Journal of Dairy Technology 31 (1) 22-26 (1976) [15 ref. En] [Gilbert Chandler Inst., Dep. of Agric., Werribee, Victoria, Australia]

Cream and vegetable oils (sunflower and soybean) were churned to produce blends containing one of these oils as 20% of the fat phase. The oils were heated at 45-50°C to give 3 levels of oxidation, and following storage of the blends for 2, 5 and 16 wk at -20°C to 20°C, these levels of oxidation were studied for their effects on flavour stability as assessed by a taste panel and by trained graders. Sunflower oil was slightly superior to soybean oil, but both oils produced blends of satisfactory flavour stability if the initial peroxide value of the oil was <1.0. There was fair agreement between the taste panel scores for the oils and their peroxide values, but a poor correlation between the methods of assessing the quality of the blends. AS

7

Cheese replacers substitute for up to 49% natural cheese.

Anon.

Food Processing 37 (6) 78-79 (1976) [En]

Replacers for cheese in prepared foods, fabricated from vegetable oils, caseinates, vitamins

and minerals can be used at levels of 25-49% substitution for natural cheese. Functional and physical characteristics of the replacer are similar to that of natural cheese. JRR

8

[Heat transfer in the Centri-Therm CT-1B thin film evaporator.]

Quast, D. G.; Siozawa, Y. Y.

Boletim do Instituto de Tecnologia de Alimentos, Brazil No. 45, 59-71 (1976) [5 ref. Pt, en]

A series of 15 studies with the Alfa-Laval Centri-Therm CT-1B evaporator is described; materials used in the experiments were orange juice, passion fruit juice, lemon juice, soy milk, pineapple juice and chicken broth. A table of results is given showing operating conditions, the yield and Brix value of the condensate and the concentrate, and the heat transfer coeff. Heat transfer coeff. were generally slightly lower than those claimed for similar products by the maker; dependence of heat transfer rate on viscosity was less than suggested by the manufacturer. The proportion of the overall resistance to heat transfer that can be attributed to the product film is discussed. AJDW

9

Soy bean milk.

Fuji Oil Co. Ltd.

British Patent 1 438 315 (1976) [En]

The beany odour is eliminated from soybean milk by subjecting it to lactic fermentation and distilling the fermented material under reduced pressure. IFT

10

[Fermented soybean milk.]

Japan, Ministry of Agriculture & Forestry

Japanese Patent 5 122 070 (1976) [Ja]

Soybean milk is fermented by treatment with *Streptococcus* to yield a product useful in producing lactic acid beverages or cheese analogues. IFT

11

[Flavouring of soy milk for use in school meals.]

Ferreira, V. L. P.; Shirose, I.

Boletim do Instituto de Tecnologia de Alimentos, Brazil No. 44, 87-102 (1975) [5 ref. Pt, en]

Samples of soy milk drinks of various flavours ((i) strawberry, (ii) chocolate, (iii) redcurrant, (iv) vanilla, (v) coconut, (vi) banana, (vii) pineapple) were evaluated by a panel of adults, and by a group of approx. 100 children (of various socio-economic groups) of 7-13 yr of age. Tables of results are given. Adults rated (iii) highest and (i) lowest for

flavour, and (v) highest and (i) and (ii) lowest for aroma. Children rated the samples in the overall order (i) (most liked), (ii), (iv), (vi), (iii), (vii), (v) (least liked). Significant differences in preferences were observed between age groups and sexes of children, but not between socio-economic groups. Opinions of the children on the desirable sugar content of the products are also discussed.

AJDW

12

Improvements in and relating to cheese.

Fuji Oil Co. Ltd.

British Patent 1 434 298 (1976) [En]

A method for making processed cheese-like products from soy cheese involves mixing the cheese under high shear with a casein-containing product (e.g. sodium caseinate, dairy cheese, dried skim-milk) and emulsifying salts, heating the mixture to 85°C and cooling it subsequently. Details of application are given in 5 examples. FL

13

[Stabilization of proteinaceous, heat-treated confectioner's cream.]

Ataev, M. M.; Leshkova, G. S.

Khlebopekarnaya i Konditerskaya Promyshlennost' No. 11, 21-23 (1974) [Ru] [Moskovskii Ordena Trudovogo Krasnogo Znameni Inst. Narodnogo Khozyaistva im. Plekhanova, Moscow, USSR]

During the manufacture of standard heat-treated confectioner's cream, various concn. of citric acid, sodium alginate and gelatin were added to the sugar syrup 2 min before completion of boiling. A series of mathematical equations and tables are given showing the effect of these concn. on the stability (modulus of elasticity) of the cream. HBr

14

Imitation milk and imitation milk products.

[Booklet]

Winkelmann, F. Food & Agriculture Organization AGA/MISC/74/2 viii + 117pp. (1974) [203 ref. En] Rome, Italy; Food & Agriculture Organization

This comprehensive publication consists essentially of 2 parts. The first part deals with: definitions; the nutritive value of cows' milk constituents; composition and manufacture of imitation milk and milk products (filled milk and milk products, non-dairy imitation milk and milk products, infant foods), comparison of milk products and imitation milk products, production, trade and prices; and market penetration and/or demand substitution by imitation milk and milk products in 1980. The second part deals in detail with the technology, production, prices and nutritive value of existing and potential protein raw materials for the manufacture of imitation milk and milk products, i.e. animal protein (milk protein in its various forms, and fish protein concentrate), oilseed proteins (soybean, groundnut, cottonseed,

sunflower seed, rapeseed, coconut and sesame seed), leaf protein, and single cell proteins. Appendices give the Code of principles concerning milk and milk products, and lists companies in the USA and UK producing imitation milk products. The publication contains 43 tables and 12 figures. AL

15

[Organoleptic evaluation of soy milk.]

Pupo, L. M.; Chaib, M. A.; Garruti, R. S.; Pereira, L.

Revista Brasileira de Tecnologia 6 (1) 111-116 (1975) [8 ref. Pt, en] [Coordenadoria de Assistencia Tecnica Integral da Secretaria da Agric. do Estado, Campinas, Sao Paulo, Brazil]

The purpose of the experiment was to improve flavour of soy milk from IAC-1, Santa Maria, Vicoja and Pelicano soybean var. prepared by the following methods: standard (DEC method); modified standard method; standard method with 0.04% NaHCO₃ solution added; standard method with 0.08% NaHCO₃ solution added; soaking of soybean in 0.05N NaOH solution. Organoleptic evaluation was by a trained panel using a modified triangular test for evaluation of differences between and preferences for samples. Chemical and chromatographic analyses were carried out to characterize the raw material. The results showed that the samples processed with NaHCO₃ were preferred by the panel, and the strong soybean flavour was eliminated. Although there was no definite correlation between preference and protein content, a degree of correlation was observed. Chromatographic analysis revealed no significant differences in essential amino acid contents. The var. IAC-1, Santa Maria and Vicoja were preferred when processed with NaHCO₃, but Pelicano was preferred when it was prepared by the standard method. AS

16

[A Geotrichum strain isolated from a weaning calf mouth cavity.]

Kato, E.; Tsuji, Y.

Bulletin of the Faculty of Agriculture Meiji University [Meiji Daigaku Nogakubu Kenkyu Hokoku] No. 37, 33-38 (1976) [9 ref. Ja, en] [Fac. of Agric., Meiji Univ., Ikuta, Kawasaki, Kanagawa, Japan]

A microbial strain was isolated from the mouth of a weaning calf, and identified as *Geotrichum candidum* Link ex. Pearson emend. by J. W. Carmichael. This strain successfully coagulates a soybean emulsion into a soft curd and, on addition of glucose, produces a fruity ester flavour which masks favourably the 'green' odour of the soybean. [From En summ.] JRR

17

Process for preparing a butter-like dairy product. Sozzi, T. Societe d'Assistance Technique pour Produits Nestle SA

United States Patent 3 962 464 (1976) [En]

The process involves the steps of pasteurizing cream (40% fat by wt.), centrifuging the pasteurized cream to a concentrated cream containing 50-65% fat, adding sufficient skim-milk to reduce the fat content of the final product to 47-56%, heating the cream for 5-60 s at 85-93°C, adding up to 5% of a butter starter culture in order to bring the pH of the final product to 5.2-5.6, cooling the resulting mixture to 2-10°C and holding the product at this temp. for ≥24 h. The resulting product, based entirely on dairy constituents, has a taste, colour and consistency closely resembling that of ordinary butter; yet it has a much lower fat content and, hence, a lower calorie content than ordinary butter, is superior in spreadability and its cost of manufacture is lower than that for ordinary butter manufacture. EJM

18

Marketing research on high-protein foods for developing countries.

Caruso, R. V.; Moore, R. J.

Food Product Development 10 (2) 54, 56, 58 (1976) [5 ref. En] [Meals for Millions Foundation, Guayaquil, Ecuador]

A detailed description is given of the 5-stage marketing research programme carried out by the Meals for Millions Foundation before launching a strawberry-flavoured powdered soy milk in Ecuador. VJG

19

[Use of soybeans as food.]

Costa, S. I. da; Quast, D. Q.; Moretti, V. A.; Canto, W. L. do; Cobbe, R. V.

Boletim do Instituto de Tecnologia de Alimentos, Brazil No. 46, 1-24 (1976) [Pt, en]

Use of soybeans as food is discussed, with special reference to the situation in Brazil. Aspects considered include: trends in production and exports of soybeans and soybean products; the protein content and cost of soybean products, as compared to sources of animal protein; forms in which soybeans may be consumed (as full-fat or defatted soy flour, as protein concentrate or isolate, as textured vegetable protein, as soy milk, as fried or toasted products, or as whole beans); consumer acceptance; economics of use of soybean products as foods or food supplements; and promising applications of soybean products (in meat products, as a protein supplement in cereal products, and in 'Vital', a soy milk product). AJDW

20

Soy cheese spread and process for preparing same. Hashimoto, Y.; Sunada, F. Fuji Oil Co. Ltd.

United States Patent 3 982 025 (1976) [En]

Soy cheese is prepared by fermenting soy milk with a lactic acid-forming cheese starter to form a curd. Oils or fats, a cheese emulsifying, melting salt and water are added to the curd, which is

vigorously agitated at an elevated temp. to liquefy and homogeneously emulsify the ingredients. A product with a paste-like consistency, a good flavour and excellent spreadability is formed. GL

21

Coconut milk extraction from frozen pulp.

Cancel, L. E.; Rivera-Ortiz, J. M.; Hernandez, E. R. de

Journal of Agriculture of the University of Puerto Rico 60 (3) 271-280 (1976) [4 ref. En, es]

[Food Tech. Lab., Agric. Exp. Sta., Mayaguez Campus, Univ. of Puerto Rico, Rio Piedras, Puerto Rico]

Frozen coconut pulp was treated in the following ways: (i) comminuted while frozen in a hammer mill and then thawed in a steam kettle where the temp. of samples was raised in 10° C increments from 10° C to 70° C; (ii) thawed in a steam kettle, by immersing in boiling water for 1, 3, 5 or 10 min; or (iii) thawed with live steam for 1, 3 or 5 min. The thawed pulp from (ii) and (iii) was subsequently milled in a hammer mill with the addition of warm or hot water during milling. All samples were then pressed, and thermocouples were used to monitor pulp temp. during pressing. Results show that coconut milk yield is directly dependent on the temp. of the pulp during pressing which should be between 35° and 50° C for max. yields. Both solids and fat contents of the extracted milk increased with increasing pulp temp. Both hot water immersion plus warm water addition during milling, and steam treatment plus hot water addition during milling gave milk yields of 65%, but the steam treatment method is recommended because of the reduced risk of contamination. DMA

22

[Analysis of some cocoa butter substitutes and their incorporation in chocolate.]

Martinez Castro, I.; Juarez Iglesias, M.; Barros Santos, C.

Anales de Bromatologia 27 (4) 317-332 (1975) [20 ref. Es, en] [Inst. de Productos Lacteos, CSIC, Arganda del Rey (Madrid), Spain]

The chemical composition of 3 kinds of cocoa butter substitutes was studied by gas chromatographic analysis of their fatty acids, sterols and triterpene alcohols. The substitute fats were incorporated in several types of chocolate, and analysed by the same method to determine the recovery. All 3 substitutes could be detected and measured, but quantitative detn. in milk chocolates was hampered by the presence of butterfat. In such cases, it is recommended that substitute fats be labelled to obviate interference and improve recovery. AS

23

[Method for preserving soya cheese.]

Glans, R.

Netherlands Patent Application 7 415 961 (1976) [NI]

Soya cheese (talm or tahoe), which is made from a coagulum obtained from the pressing water of steeped soybeans and is extensively used in Chinese and Indonesian cooking, is preserved in air-tight containers, e.g. small rectangular plastics boxes with air-tight lids, which contain also sufficient water to maintain max. humidity. The added water contains preferably salt and/or a preservative. W&Co

24

[Method and equipment for the manufacture of butter-like products of reduced fat content.]

Verfahren und Vorrichtung zur Herstellung butterähnlicher Produkte mit niedrigem Fettgehalt. Balla, A.; Schmidt, H. H.; Krüger, P.; Bohr, F. *German Democratic Republic Patent* 120 119 (1976) [De]

In the method for the manufacture of butter-like products of reduced fat content in continuous buttermaking machines, the product treated, preferably a water-in-fat emulsion, is imparted the correct amount of mechanical energy to transform it into an intermediate structure state whilst avoiding the formation of granular emulsion. This region is characterized by a great fall in electrical conductivity of the product which may be measured. The product obtained is stable and may be used as such without any additional treatment. IN

25

The yield, quality and chemical composition of Domiati cheese from buffaloes and soy milk mixture.

Hofi, A. A.; Rabie, A. M.; Farahat, S. E.; Abou El-Ella, W. M.; El-Shibiny, S.

Egyptian Journal of Dairy Science 4 (2) 141-145 (1976) [10 ref. En, ar] [Dep. of Food Sci., Ain Shams Univ., Cairo, Egypt]

Yield of Domiati cheese, made from a mixture of buffaloes' and soy milk in the ratio 4:1, was slightly less and wt. losses during pickling were slightly higher than for cheese from buffaloes' milk. Quality of cheese from the buffalo/soy milk mixture was less than that of the control cheese. Changes in chemical composition of both cheeses were almost the same during pickling. AS

26

[Use of buttermilk in food products.]

Vyshemirskii, F. A.; Silin, V. M.; Mirin, V. G. *Molochnaya Promyshlennost'* No. 10, 12-16 (1976) [Ru] [Nauchno-proizvodstvennoe Ob'edinenie Maslodel'noi i Syrodel'noi Promyshlennosti 'Uglich', USSR]

Various measures employed in the USSR to improve utilization of milk solids in the manufacture of butter are dealt with. They include the omission of washing granules in batch buttermaking (increasing the SNF content of butter from 1 to 1.35% results in the saving of about 100 kg milk/t butter), production of butter of reduced

butterfat content, such as Lyubitel'skoe and Krest'yanskoe with considerable savings of milk requirements (from 23.71 t milk/t for normal butter to 22.41 and 20.91 t respectively), and production of butter products with high proportions of vegetable fats. The use of buttermilk in the standardization of market milk, and recovery of the butterfat by centrifugal separation of buttermilk are further ways of improving milk utilization. FL

27

[Cheese substitute.]

Chiyoda Chemical Engineering & Construction Co. Ltd.

Japanese Patent 5 136 339 (1976) [Ja]

A substitute for Parmesan cheese is produced from durum wheat flour mixed with soybean powder and fatty acids. IFT

28

Some legal aspects of developing new cereal derived foods for international markets.

McNamara, S. H.

Cereal Foods World 21 (9) 489-491 (1976) [3 ref. En] [FDA, Washington, DC, USA]

Regulations concerning the introduction of new foods and food additives in the USA are briefly reviewed and labelling requirements for 'imitation' and 'substitute' foods are discussed. JRR

29

Method of manufacturing an aseptic soya bean curd.

Okada, K.; Ogasa, K.; Kuwahara, K. Morinaga Milk Industry Co. Ltd.

United States Patent 4 000 326 (1976) [En]

Soybean juice is continuously sterilized at 135°C for 2 s after which the resultant juice is flowed to an aseptic brick filling machine where it is mixed with glucono- δ -lactone and a divalent metal salt. The resulting liquid mixture is continuously filled into containers in an aseptic atmosphere, after which the containers are immersed in water to coagulate the mixture. IFT

30

[Low-calorie butter has proved itself.] 'Frische Rahmbutter' hat sich bewährt.

Meyer, A.

Ernaehrungsforschung 21 (2) 50-51 (1976) [3 ref. De] [Inst. für MilCHForschung der DDR, Oranienburg, German Democratic Republic]

In the German Democratic Republic, 40% of women, 20% of men and 12% of children are overweight. Butter accounts for 40% of fat consumed. A new low-calorie butter has been developed. In consumer tests, reasons given for preferring the new product were: taste and freshness (50%), low calorie content (21%),

favourable price (13%), good spreadability (13%), attractive packaging (3%). 13 plants are manufacturing the low-calorie butter which accounted for 20% of total butter production in 1975. The product can be stored for 10 days at 10°C and a RH of 80-90%. It contains 45% fat and 5% SNF; the calorie content is 41% lower than that of normal butter. IN

31

The rennet-forming molds in cheese production from defatted coconut milk or gata.

Santos, P. S.; Palo, M. A.; Felix, L. S.; Palo, N. D.; Yares, A. Y.

Research Bulletin, NRCP [National Research Council of the Philippines] 30 (2) 170-178 (1975) [11 ref. En] [Nat. Res. Council of Philippines, Diliman, Philippines]

An enzyme preparation with milk clotting activity (MCA) was prepared from the culture filtrate of a rhizopus strain (M-14) grown in a copra meal medium. The MCA of the M-14 enzyme was higher than that of animal rennet used at the same concn. of about 12 mg/ml (54.54 vs. 26.08 units/ml). Cottage cheese, made from carabao (buffalo) milk and using M-14 enzyme, had a similar texture to that made with animal rennet, but the colour of the mould extract imparted a cream to light brown colour to the cheese (compared with the white cheese produced by animal rennet). Cheesemaking using defatted coconut milk or gata was unsuccessful since the M-14 enzyme was unable to clot the coconut proteins. MEG

32

Fractionating fats: butter spreadable over wide temperature range.

Norris, R. New Zealand, New Zealand Dairy Research Institute

New Zealand Patent 172 101 (1976) [En]

Milk fat or a milk fat-containing substance is fractionated into >3 fractions of which the first melts at <0°C, the second between 0° and 20°C and the third at >20°C. Fraction 1 is then blended with fraction 3 in suitable proportions and with a desired proportion of water, salt and solids-not-fat of milk origin to produce a dairy spread or butter which has spreading characteristics which do not change at temp. between 5° and 22°C. W&Co

33

[Science of soybean milk.] [Review]

Fukushima, D.

Up-to-Date Food Processing [Shokuhin Kaihatsu] 10 (2) 20-26 (1975) [34 ref. Ja] [Noda Inst. Ind. Res., Choshi, Chiba, Japan]

The nutritive value of soybean milk (SBM) is improved by heating for 60 min at 93°C or for 5-10 min at 121°C. This is partly because of inactivation of undesirable proteins such as trypsin inhibitor and haemagglutinin, but also because of denaturation of

major proteins. SBM is nutritionally superior to cows' or human milk in containing far more linoleic acid. Flavour components of soybean, defatted soybean, and protein isolate are tabulated. Major components responsible for the flavour of SBM are 1-octen-3-ol, produced during steeping of soybeans in water, and ethyl vinyl ketone, produced by lipoxygenase. New methods of preparing SBM are discussed, e.g. steeping in water, or crushing with hot water at 80°C, and filtering; extruder cooking; treatment in a colloid mill with additions of water, soybean oil, and an emulsifier; high-pressure homogenization; spray-drying; and mixing with sugar, NaCl, flavour essence, and vitamins, including vitamin E. SKa

34

[Method for producing confectionery creams.]
Baranov, V. S.; Mikhailov, V. S.; Kurbanov, N. G.
Union of Soviet Socialist Republics, Moskovskii
Institut Narodnogo Khozyaistva im. G. N.
Plekhanova; Union of Soviet Socialist Republics,
Nauchno-issledovatel'skii Institut
Obshchestvennogo Pitaniya
USSR Patent 545 321 (1977) [Ru]

To increase the storage life of confectionery cream without change in its structure, a gelling ingredient is dissolved in a mixture of vegetable oil and water, sugar and egg white are beaten together and added to the solution, flavouring and aromatic additives are added and the mixture is beaten. The gelling ingredient is preferably sugarbeet pectin.
W&Co

35

[Method of obtaining a whole milk substitute.]
Voropaeva, V. S.; Smekalov, N. A.; Ionkina, A.
A.; Radaeva, I. A. Union of Soviet Socialist
Republics, Vsesoyuznyi Nauchno-issledovatel'skii
Institut Molochnoi Promyshlennosti
USSR Patent 537 665 (1976) [Ru]

A milk by-product, such as skim-milk or buttermilk, is pasteurized and condensed. To improve product quality and shelf-life, an emulsifier and a fat pre-stabilized with antioxidant, e.g. santokuin, are added successively, followed by mixing with fat-soluble vitamins, homogenization and drying. W&Co

36

[Organoleptic study on a new dihydrochalcone sweetening agent.] Sensorische Untersuchung eines neuen Dihydrochalkon-Süsstoffes.
Rajky-Medveczky, G.; Takacs-Palasti, M.; Bolla-Pusztai, E.; Szejtli, J.
Nahrung 21 (2) 131-137 (1977) [13 ref. De, en, ru] [Inst. für Lebensmittelkontrolle & Untersuchung. Budapest, Hungary]

Studies on the relative sweetness of the dihydrochalcone sweetener CH-401-Na (1-[2-hydroxy-4-(3-sulphopropoxy)phenyl]-3-[3-hydroxy-4-

methoxyphenyl]-propanone-1-Na) and 13 other salts of this sweetener were conducted; taste panellists compared the sweetness of solutions of sucrose and of CH-401 salts. The results show that CH-401-Na is approx. 1000 times as sweet as sucrose; other CH-401 salts had relative sweetness values of 750-1150 times that of sucrose. Studies on use of CH-401 salts as sweeteners in foods were conducted. Good results were achieved with lemonades and stewed apples; however, coffee, cola drinks, biscuits or vanilla-flavoured imitation cream products were unacceptable. Studies showed that, in contract to sucrose, the sweet taste is detected at the back of the tongue and the sides of the mouth; the 'sweetness' sensation persists longer than that of sucrose. This persistent sweetness could be minimized by addition of inorganic salts (NaCl, KCl, K₂HPO₄) to the medium. Good results were achieved with substitution of CH-401-Na for 90% of the sucrose in a lemonade, and addition of 0.2 g NaCl/l. to counteract persistent sweetness. Acute and subacute toxicity studies with rats have failed to show any toxic effects of this new sweetener.
AJDW

37

Fortification of foods by fermentation with lysine-excreting mutants of lactobacilli.

Sands, D. C.; Hankin, L.

Abstracts of Papers, American Chemical Society 170, AGFD 10 (1975) [En] [Dep. of Plant Path., Connecticut Agric. Exp. Sta., Box 1106, New Haven, Connecticut 06504, USA]

Some wild-type microorganisms and mutants have been found which excrete specific amino acids. Some of these microorganisms are used to manufacture amino acids through fermentation procedure but none has been used directly to augment the amino acid content of food produced by fermentation. Lysine analogues were used to select for spontaneous mutants of lactobacilli that over-produce and excrete lysine. Both wild-type *Lactobacillus acidophilus* and a lysine-excreting mutant were used to ferment soybean milk to yoghurt. The wild type decreased the lysine content of the soymilk by 20% whereas the mutant increased it by 14%. The use of lysine-excreting mutants in producing fermented foods is compared to direct fortification of foods with lysine and modification of plant protein through genetics. AS

38

[Studies on methane fermentation. XXXVII. Treatment of food industry waste water.]

Seiko, Y.; Sonoda, Y.

Report of the Fermentation Research Institute [Kogyo Gijutsu-In Hakko Kenkyusho Kenkyu Hokoku] No. 48, 103-109 (1976) [3 ref. Ja, en]

Anaerobic digestion of waste waters produced during miso and soybean curd manufacture was studied. Miso waste water (BOD 28 000 ppm) was treated by thermophilic digestion (54°C). The BOD was reduced by 80%. Soybean curd waste water (BOD 5630 ppm) was treated by continuous mesophilic digestion (37°C). The BOD was reduced by 67%. [From En summ.] JA

39

Studies on fermented soymilk products. III. Activity of cheese and yoghurt cultures in soymilk and fortified soymilk.

Kothari, S. L.

Indian Journal of Microbiology 15 (1) 18-26 (1975) [17 ref. En] [Dep. of Food Sci. & Tech., G. B. Pant Univ. of Agric. & Tech., Pantnagar (Nainital) 263145, India]

Cheese starter cultures *Streptococcus lactis* C10, *Str. cremoris* R6, *Str. diacetylactis* DRC-H and a lactic fermentor (LF), and yoghurt cultures *Str. thermophilus* and *Lactobacillus bulgaricus* were grown in soy milk with or without 1% lactose that had been heated at various temp. or fortified with various sugars, lactic acid whey or skim-milk. Acid production after 8 h was higher when lactose was present, and the yoghurt cultures generally developed a higher acidity than did the cheese cultures. Acid production was enhanced when milk had been heated at $<65^{\circ}\text{C}$ for 30 min or 121°C for 5-15 min, and inhibited when it had been heated at $75-100^{\circ}\text{C}$ for 15 min or 121°C for >15 min. Apart from *Str. thermophilus*, which remained unaffected, all cultures showed enhanced acid production when part of the soy milk was replaced by cows' or buffaloes' skim-milk (10-50% replaced) or lactic acid whey (10-25% replaced); buffaloes' skim-milk or whey had a greater stimulatory effect than did cows' skim-milk or whey. Even with lactose enrichment, acid production from soy milk was insufficient for manufacture of fermented products. [See FSTA (1976) 8 11H2033 for part II.] CDP

40

[An alternative method of ripened-cream butter manufacture.] Eine alternative Methode für die Herstellung von Sauerrahmbutter.

Berg, G. van den; Stadhouders, J.; Veringa, H. A. *Molkerei-Zeitung Welt der Milch* 30 (42) 1275-1276, 1285-1286 (1976) [4 ref. De] [NIZO, Ede, Netherlands]

This paper presents essentially the same information as that published in parallel in another journal [see FSTA (1977) 9 6P880]. In addition to the advantages of the method listed there, it is pointed out that the new procedure requires culturing of much smaller quantities of starter. SKK

41

Studies on the processing and properties of artificial milk. VI. Effect of electrolytes on the stability of proteins in soymilk.

Khaleque, A.

Bangladesh Journal of Scientific and Industrial Research 11 (1/4) 94-102 (1976) [9 ref. En] [BCSIR Lab., Dacca, Bangladesh]

The effects of electrolytes [i.e. 0.05-0.5% NaCl, NaNO_3 or $\text{Ca}(\text{NO}_3)_2$] on the stability of proteins in a bland soymilk were studied, with special ref. to

NaCl formed during its preparation. NaCl and NaNO_3 , at the concn. which are effective in native proteins, were unable to destabilize the proteins denatured by low heat ($17-20^{\circ}\text{C}$) or alkali treatment. $\text{Ca}(\text{NO}_3)_2$ was more liable to destabilize denatured than native proteins. The destabilization of the soymilk proteins was attributed to aggregation of the molecules caused by the anions. The instability of the proteins was not dependent on the electrical conductivity of samples. The amount of NaCl formed in soymilk prepared from carbonate-pres soaked beans had no effect on increasing its viscosity. AS

42

Production of foodstuffs from whey and soya. British Arkady Co. Ltd.

British Patent 1 459 421 (1976) [En]

A process for eliminating or destroying the trypsin inhibitor in soybean (raw soy, treated soy still containing some trypsin inhibitor, defatted or partially defatted soy or a concentrate or isolate of soy protein) comprises mixing the soy material with whey or buttermilk at a ratio of e.g. 1:7, adjusting the pH of the mixture if necessary (to preferably >7.5 or <5.5) with an alkali (sodium hydroxide or calcium hydroxide) or with an acid (lactic or tartaric acid) or by the action of lactic acid bacteria present in the whey, heating the mixture preferably under pressure for e.g. 10 min at 15 lb/in² gauge and drying it. Examples of application are given in detail. The process avoids the necessity of drying separately the soy and whey which is required when dried whey and dried soy are mixed together, and overcomes to some extent the difficulties arising from high sugar content of whey when this is dried alone. FL

43

Low calorie cream.

Bracco, U. Nestle SA

British Patent 1 473 965 (1977) [En]

A low-calorie cream is prepared from a mixture comprising 50-90% water; (on DM basis) and 10-35% amylaceous material (cocoa cakes, purees or pulps of fruits); $>5\%$ proteins (dried skim-milk, sodium caseinate, fish protein isolates); $>5\%$ fats (vegetable oils, animal fats such as butter + emulsifying fats, e.g. lecithin); and sugars (lactose, fructose, sucrose), flavouring, colorants, etc. The mixture is homogenized at >100 atm and heated to $80-130^{\circ}\text{C}$ for >10 min to thicken it to the consistency of a cream, e.g. by autoclaving in sealed containers for 12 min at 115°C . The product has a storage life of several months. FL

44

The use of soy milk in manufacture of skim milk 'Karish' cheese.

Abou El-Ella, W. M.; Farahat, S. E.; Rabie, A. M.; Hofi, A. A.; El-Shibiny, A.

Milchwissenschaft 32 (4) 215-216 (1977) [9 ref. En, de] [Dep. of Food Sci., Ain Shams Univ., Cairo, Egypt]

Soy milk was prepared from soybeans soaked in tap water for 24 h at 5°C, blended with 3 parts water at 40°C for 5 min, filtered and sterilized at 121°C for 15 min. Kareish cheese was manufactured from a 4:1 mixture of buffaloes' skim-milk and soy milk. After pickling for 6 wk in whey containing 15% salt, the yield of cheese was 19.46% (vs. 20.13% for control cheeses made with buffaloes' milk). The cheese containing soy milk had a slightly higher acidity and salt content than the control cheese. Addition of 20% soya milk had no adverse effect on ripening index, total volatile fatty acids, total N and soluble N contents, appearance, colour, texture or flavour of Kareish cheese. MEG

45

Studies on the processing and properties of artificial milk. V. Effect of processing conditions on the stability of proteins in various soymilk preparations. Khaleque, A.

Bangladesh Journal of Scientific and Industrial Research 11 (1/4) 70-78 (1976) [15 ref. En] [BCSIR Lab., Dacca, Bangladesh]

The effects of heat processing (17 min. at 115°C) and of Ca^{2+} ions on the viscosity and insoluble solids content of soymilk prepared from water- or 0.4M carbonate-pres soaked beans were investigated. Tabulated results showed that the proteins were highly stable under the optimum processing conditions, with only slight increase in viscosity of the milk from water-pres soaked beans. The viscosity increased with processing time between 10 and 30 min, and during ageing of processed milk. The insoluble solids content increased with processing. Of Ca chelating agents, addition of trisodium polyphosphate ($\text{Na}_3\text{P}_3\text{O}_{10}$) + NaH_2PO_4 (1:1) or sodium hexametaphosphate (NaPO_3)₆ had no effect on viscosity of raw or preheated soymilk but at increasing concn. caused a rise in viscosity during heat treatment, while EDTA also affected raw and preheated preparations. The results are discussed in terms of protein conformation and its effect on hydration. RM

46

Studies on preparation, standardization and organoleptic scoring of soymilk.

Meenu Mittal; Quadri, M. A.; Kushawah, H. S.; Datta, I. C.

Journal of Food Science and Technology, India 13 (4) 201-202 (1976) [11 ref. En] [Dep. of Biochem., Coll. of Vet. Sci. & Animal Husbandry, J. N. Krishi Vishwa Vidyalaya Jabalpur 482 001, India]

An improved method of small-scale soy milk preparation has been developed. After evaluation of the effect of mild alkali or metabisulphite treatment, dilution factor, soaking time and steaming on palatability and protein extraction, the optimum results were obtained by soaking soybeans for 3 h, cooking for 10 min in preboiled soak water with 0.05% sodium metabisulphite (175 mg/350 ml), manual dehulling, homogenization using soak

water, steaming of the slurry for 10 min, straining, gentle heating of the extract for 30 min, addition of sugar, and dilution with water to a final soybean:water ratio of 1:6 (w/v). Average protein content and general acceptability of soymilk, cows' milk, and their blends (2:1 and 4:1) were determined. Soymilk alone was quite acceptable, but palatability was improved by blending. Cost of the 4:1 blend was estimated at <1/3 of that of cows' milk. AL

47

[J. Lülfi dairy, Osterwick, Federal Republic of Germany, produces 80 t half-butter per month.] Molkerei Lülfi produziert monatlich schon 80 Tonnen Milchhalbfett.

Anon.

Deutsche Milchwirtschaft 28 (23) 772-773 (1977) [De]

The product contains 50% less milk fat than normal butter (385 vs. 755 kcal/100 g) and is claimed to be comparable to butter in flavour, and superior in spreadability. It is made with addition of 55 g milk protein/kg and contains 0.1% sorbic acid; keeping quality is 4-6 wk at refrigerator temp. The product may be used as spread on bread. FL

48

Serum complement-like opsonic activities in human, animal, vegetable, and proprietary milks.

Miller, M. E.; Ganges, R. G.

Science, USA 196 (4294) 1115-1117 (1977) [12 ref. En] [Dep. of Pediatrics, Univ. of California, Los Angeles, California, USA]

Human, animal, proprietary and soy milks were comparable to one of the human serum complement proteins, C5, in opsonization of baker's yeast. Cows' milk and human serum opsonically reconstitute C5-deficient mouse serum. Such reconstitution is selectively inhibited by antiserum to human C5. Further characterization suggests that bovine whey proteins contain material structurally and functionally similar but not identical, to human C5. JMD

49

Method for re-fattening proteinaceous material.

Roux, J. P. le; Fraissignes, B. M. P. P.; Revoy, A. J. P. E.

British Patent 1 459 297 (1976) [En]

A process for producing a balanced protein-rich product for use as or in milk replacers comprises adding a dry proteinaceous material derived preferably from single-cell microorganisms (e.g. yeast) to a molten fat (lard, tallow, copra) at a temp. between its mp and 100°C, and mixing the re-fatted product with >1 other replacer ingredient (whey constituents, starches, glucoside). It is claimed that the product, when dry, has good resistance to adverse thermal conditions and little tendency to exude the fat at increased temp. FL

50

[Material dispersible in water and containing protein obtained from mono-cellular organisms and process for making it.]

Societe Francaise des Petroles BP

French Patent Application 2 315 859 (1977) [Fr]

The material comprises finely divided protein dispersed in a solid matrix consisting of a polysaccharide capable of forming a gel in cold water. The polysaccharide may be a pregelatinized maize or potato starch or a colloidal dextrin. The protein is extracted from a yeast which can be cultured in the presence of a hydrocarbon, such as a gas oil fraction. The product is said to be suitable as a milk substitute. W&Co

51

Lactobacillus acidophilus utilization of sugars and production of a fermented soybean product.

Stern, N. J.; Hesseltnine, C. W.; Wang, H. L.; Konishi, F.

Canadian Institute of Food Science and Technology Journal 10 (3) 197-200 (1977) [12 ref. En, fr]
[N. Regional Res. Lab., USDA, Peoria, Illinois 61604, USA]

8 strains of *Lactobacillus acidophilus*, obtained from the ARS Culture Collection, were tested for their ability to use monosaccharides (fructose, galactose, glucose and D(+)mannose), disaccharides (lactose, maltose and sucrose) and 2 oligosaccharides (raffinose and stachyose). As judged by titratable acidity and pH changes during growth, strain variation existed in the ability of the microorganisms to utilize the sugars. Strain NRRL B-1910 was a superior utilizer of raffinose and stachyose as measured by medium pH changes. Therefore, B-1910 was selected as inoculum for the successful production of a yoghurt-like soybean product, which has potential as a good protein food source. AS

52

Utilization of vegetable proteins in cheese manufacture.

Pulle, M. W.

Journal of the National Agricultural Society of Ceylon 11/12, 45-52 (1974/1975) [6 ref. En]
[Dep. of Agric. Chem., Univ. of Sri Lanka, Peradeniya Campus, Sri Lanka]

The preparation of a "cheese" from plant proteins was investigated. Protein extracts were obtained from soybeans, green gram (mung bean) and tur dhal (a type of lentil), filtered to remove insoluble sediments and processed with addition of 0.4% CaSO_4 , 1.5% citric acid, 0.5% rennet extract, 2% lactic acid and 5% culture (curd or yoghurt). Beany flavour was eliminated by heating to 100°F over 30 min and maintaining the temp. for 45 min. After 2-4 wk ripening at 60-70% RH in a refrigerator the soft cheese prepared could be used as a spread. To produce Cheddar-type hard cheese, enrichment with 10% milk solids provided the desirable quality attributes. Tabulated values for the approximate %

composition and taste panel scores showed that soybean cheese was superior to the other 2 in protein and fat contents; apart from flavour, sensory properties (appearance, aroma, general eating quality, moistness, tenderness, texture) approached the values for Cheddar cheese. RM

53

Studies on the processing and properties of artificial milk. IV. Evaluation (in vitro) of nutritional quality of proteins in various heat-processed soymilks.

Khaleque, A.; Wallace, G. M.

Bangladesh Journal of Scientific and Industrial Research 10 (1/2) 148-157 (1975) [27 ref. En]
[Dep. of Food Tech., Massey Univ., Palmerston N., New Zealand]

The effect of processing conditions on the nutritive quality of proteins in soymilks was studied using a number of in vitro methods: no significant difference in quality was observed between beans, all presoaked in 0.4M Na_2CO_3 and then processed at 115°C for 18 min, or at 98°C for 40 min, or preheated at 115°C for 5 min followed by concn. to 15.5% solids content and sterilization to F_0 value of 5.5. Results on amino acid composition and availability (determined by in vitro enzymic method of Ford & Salter [British Journal of Nutrition (1966) 20, 843]) showed that carbonate-pres soaked soymilk had higher nutritive value than the standard product prepared by water-pres soaking and processing at 115°C for 15 min, as well as slightly (but not significantly) higher available lysine and significantly higher pepsin digestibility. The essential amino acid index of soymilk (unspecified type) is considerably lower than that for human and cows' milk or eggs, mainly due to the low amounts of S-amino acids. Methods of process control and quality assessment of soymilk are discussed. RM

54

Quality control in coconut milk processing. I.

Sources of microbial contamination.

Rosario, R. R. del; Mabesa, R. C.

Philippine Agriculturist 60 (1/2) 66-72 (1976) [8 ref. En]
[Dep. of Food Sci. & Tech., Coll. of Agric., Univ. of the Philippines at Los Banos, Philippines]

The microbiological quality of coconut milk produced with or without sanitation (raw material and all equipment sanitized with 0.05% NaOCl, operators' hands with 70% alcohol) was evaluated. Samples were obtained from the processors' hands, from utensils and equipment used in processing, and from unopened nuts; total plate, mould yeast and coliform counts were carried out on all samples. Grated coconut meat and raw coconut milk samples were also gathered to determine the contamination of the products during processing. Tabulated results revealed that the hands, nuts and air were the main sources of contamination. Grossly contaminated materials and equipment had an enormous effect on the microbiological quality of the coconut milk. The disinfection measures reduced the microbial count of grated coconut meat and raw whole milk by 95-98%. [From En summ.] RM

55

Improvements in or relating to non-dairy creamer compositions.

Gardiner, D. S. (General Foods Ltd.)

British Patent 1 469 541 (1977) [En]

A non-dairy creamer, claimed to have improved resistance to feathering, comprises (on dry wt. basis) 3-15% sodium caseinate, 20-40% fat (e.g. high lauric vegetable fat) and 35-65% carbohydrate (maize syrup solids) and includes as a buffering agent 1-4% of a mixture of sodium carbonate and a phosphate or citrate and an emulsifier. The process involves homogenization, e.g. at 4000 lb/in² gauge, and spray-drying to 2% moisture. FL

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FAB 7

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H. BROOKES

ASSISTANT EDITOR

1

Process for the production of an improved simulated casein from proteinaceous material.

Chandler, K. L.; Hyldon, R. G.; Kumar, S.; O'Mahony, J. P. (Quaker Oats Co.)

United States Patent 4 036 996 (1977) [En]

An aqueous slurry of a modified, solvent-extracted oilseed protein, e.g. oat, sesame seed, ground nut or soy proteins, and an alkali metal carbonate is admixed with a neutralizing slurry. Steam volatile flavour compounds are removed and the neutralized slurry is dried and may be blended with an unmodified protein, e.g. ground meat. This improved modified protein has thermoplastic and foaming properties similar to casein and salts and has an improved odour, taste and colour. GL

2

Process for the production of a modified plant protein with improved color and flavor.

Chandler, K. L.; Hyldon, R. G.; Kumar, S.; O'Mahony, J. P. (Quaker Oats Co.)

United States Patent 4 038 437 (1977) [En]

[See preceding abstr.]

3

Protein dispersibility of spray-dried whole soybean milk base: effect of processing variables.

Aminlari, M.; Ferrier, L. K.; Nelson, A. I.; *Journal of Food Science* 42 (4) 985-988 (1977) [26 ref. En] [Dep. of Food Sci., Univ. of Illinois, Urbana, Illinois 61801, USA]

A full-fat soybean milk base was produced by grinding blanched soybean cotyledons with water, heating, and homogenizing the resulting slurry [see FSTA (1976) 8 6H1012]. The soy milk base was spray dried using a Necro-Niro portable spray drier. The protein dispersibility index (PDI) of the spray dried powder was altered by changing the processing conditions used during manufacture or spray drying. The PDI of the spray dried soy milk base was higher when ammonium bicarbonate rather than sodium bicarbonate was used for blanching the cotyledons. The PDI of the spray-dried powder increased when the soybean slurry was homogenized at high pressures and when sodium bisulphite was added to the soy milk base before drying. Sodium bisulphite was the most effective single treatment for increasing PDI. Increasing the pH of the soy milk base to 9 before spray drying increased the PDI of the soy powder. Desludging the soy milk base did not increase the PDI. The best PDI obtained was 72. IFT

4

Fate of *Staphylococcus aureus* in radiation sterilized model food systems simulating dairy products. (In 'Use of radiations and radioisotopes in studies of animal production' [see FSTA (1978) 10 2G58].)

[Lecture]

Sulebele, G. A.; Kamat, M. Y.

pp. 347-360 (Undated) [27 ref. En] [Dep. of

Chem. Tech., Univ. of Bombay, Bombay 400 019, India]

2 model food systems were studied: (i) simulated pedha (a type of Indian sweet) contained 23.5% dried skim milk, 48.0% sucrose, 13.0% coconut oil in water, and (ii) simulated Cottage cheese contained 27.5% calcium caseinate, 1.5% NaCl, 1.2% coconut oil and 0.1% sorbic acid in 0.1M citrate buffer, pH 5.5. The dried skim milk-sucrose mix and the calcium caseinate, vacuum-packed in high density polythene pouches, were sterilized by irradiation with 1.5 Mrad. (i) and (ii) were inoculated with enterotoxigenic *Staphylococcus aureus* alone, or in association with *Staph. epidermidis* and other mixed flora, and incubated at 4° or 35°C. The irradiation levels used for sterilization did not produce any substances toxic to the test organisms, (i) did not support growth of *Staph. aureus*, but in, (ii) staphylococcal counts increased from 10^4 to 10^8 /g in 3 days at 35°C. It is concluded that (ii) provides a suitable ecosystem for studying parameters affecting food spoilage. MEG

5

[Packs for the soy milk product 'Vital'.]

Cabral, A. C. D.; Canto, W. L. do; Madi, L. F. C.; Soler, R. M.

Boletim do Instituto de Tecnologia de Alimentos, Brazil No. 51, 15-42 (1977) [9 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

Studies on possible methods for packaging of pasteurized or sterilized 'Vital' soy milk (developed at the authors' institute) are described. Packs considered include polyethylene or plastics laminate bag-in-box systems, card/plastics film laminate cartons (e.g. Tetra-Pak, Tetra-Brik, Pure-Pak), polyethylene bottles, cans, and glass bottles. The relative merits of these packs for the institutional and domestic markets are discussed. Available packaging equipment is also briefly described. AJDW

6

[Bean curd production.]

Yuki Gosei Yakuhin Kogyo Co. Ltd.

Japanese Patent 5 224 583 (1977) [Ja]

Glycine is added to soybean milk in the production of bean curd to provide tackiness and good lustre to the finished product. IFT

7

[Examination of some staple processed foods in the market of Fukuoka Prefecture. VII. Packed soybean curd and 'abura-age'.]

Omura, H.; Takata, M.; Ishida, H.; Aramaki, T.; Matsumoto, M.; Joo, K.-J.

Science Bulletin of the Faculty of Agriculture, Kyushu University 31 (2/3) 61-67 (1976) [8 ref. Ja, en] [Food Chem. Inst., Fac. of Agric., Kyushu Univ., Fukuoka 812, Japan]

5 different brands of (i) packed soybean curd and (ii) 'abura-age' (deep fried soybean curd slices)

were analysed for chemical and organoleptic properties. (i) had 91.1% moisture, 4.1% protein, 1.3% fat, 0.5% ash, 2.9% carbohydrate, 37 kcal and a pH of 10 (average values). The chemical composition of (ii) varied according to whether it was made by hand or mechanically. Average values were 27.5% moisture, 26.6% protein, 32.7% fat, 1.7% ash, 11.5% carbohydrate, 434 kcal, 80.3 m-equiv./kg peroxide value for the handmade material. Mechanically made (ii) had a highly variable composition. No relationship between chemical analyses and organoleptic evaluations were found; however, texture was an important factor in acceptability. [From En summ.] [See Science Bulletin of the Faculty of Agriculture, Kyushu University 30 (1/2) 35-39 for part VI.] JRR

8

[Soybean milk.]

House Food Industry Co. Ltd.

Japanese Patent 5 224 581 (1977) [Ja]

Soybeans are immersed in water and crushed in the absence of O₂ to yield a high quality soybean milk. IFT

9

Organoleptic evaluation and nutritive value of recipes of soymilk and soyresidue.

Parihar, A. S.; Mittal, M.; Datta, I. C.; Quadri, M. A.; Kushwah, H. S.

Journal of Food Science and Technology, India 14 (3) 130-132 (1977) [6 ref. En] [Dep. of Biochem., Coll. of Vet. Sci. & Anim. Husbandry, Jabalpur-482 001, Madhya Pradesh, India]

Evaluation of the organoleptic properties, nutritive value and cost of preparation of snacks after incorporation of soymilk and soyresidue was carried out. Protein content (4%) in soy milk prepared from soybean-water (1:6) was comparable to that of cow milk (3.7%). Cost of production of soy milk was 1/5 of that of cow milk. Organoleptic score of soy milk recipes such as pudding, ice cream, custard and milk shake was more or less the same as that of standard recipes. Soy residue recipes such as cake, khurma, sev and samosa were comparable with standard recipes. CFTRI

10

Protein concentrates from wheat shorts, rice bran, and soy flour by extraction with cheese wheys.

Lindsay, G. W.; Saunders, R. M.; Kohler, G. O. *Journal of Food Science* 42 (5) 1365-1369 (1977) [19 ref. En] [USDA W. Regional Res. Lab., Berkeley, California 94710, USA]

A wet alkaline process to prepare protein concentrates from wheatfeed was modified by substitution of sweet or acid whey for water in the system. Extraction variables, including pH, wheatfeed concn., time and temp. were studied. A depression in protein extraction in the whey system was investigated by using model systems containing particular whey components. Optimum conditions

were determined for coprecipitation by heat of wheat and whey proteins. The whey-wheat protein concentrates were nutritionally superior to those prepared in a simple aqueous system. Protein concentrates were also prepared from soy flour and rice by extraction with sweet or acid whey. Use of whey as a processing medium in aqueous processing systems could, by substituting for water, indirectly provide energy savings. Proximate compositions of all concentrates prepared, and amino acid analyses of whey-wheat protein concentrates are tabulated. IFT

11

Fat emulsion product and process for producing the same.

Petrowski, G. E.; Wolcott, J. M.; Ortiz, E. P. (Carnation Co.)

United States Patent 4 045 589 (1977) [En]

A dry protein-free coffee whitener comprises a dry emulsion concentrate containing water soluble carbohydrate, an emulsifier, a buffering salt, 20-50% of a fat with a particle size of 1-3 µm and a chemically modified dextrinized starch derivative stabilizer. IFT

12

[Effects of soy protein isolate on quality and acceptability of soy protein isolate substituted beef patties and ice cream.]

Kim, C.-J.; Byun, S.-M.

Korean Journal of Food Science and Technology 9 (3) 190-193 (1977) [15 ref. Ko, en] [Dep. of Biol. Sci. & Tech., Korea Advanced Inst. of Sci., Korea]

Beef patties with 0, 15, 30, 45, 60, 75 and 100% replacement of beef with soy protein isolate (SPI) and ice cream containing 0, 25 and 50% substitution of milk SNF with SPI were prepared. Sensory analysis indicated that beef patties containing ≤30% SPI were not significantly different from the control samples. The ice cream with 25 and 50% SPI showed the same textural quality as the control but had a significant 'beany' off-flavour. [From En summ.] SP

13

Novel caseinate - effects natural functional properties for imitation cheese.

Petka, T. E.

Food Product Development 10 (10) 26-27 (1976) [En] [Western Dairy Products, San Francisco, Canada]

Savortone 491, a specially modified calcium/sodium caseinate, developed by Western Dairy Products, can be used to produce an acceptable imitation cheese. The cheese can be produced in < 10 min using a sample blending process, and then used, without sacrificing functional performance, to extend or completely replace costly natural cheese. A photographic sequence illustrates the production of mozzarella cheese by this process. VJG

14

Extending shelf-life of fresh soybean curds by in-package microwave treatments.

Wu, M. T.; Salunkhe, D. K.

Journal of Food Science 42 (6) 1448-1450 (1977)

[10 ref. En] [Dep. of Nutr. & Food Sci., Utah State Univ., Logan, Utah 84322, USA]

Soybean curds are very perishable. The shelf-life of fresh soybean curds varied with storage temp. In-package microwave heating treatment of fresh soybean curds effectively extended shelf-life.

Soybean curds pretreated with microwave heating to 65°, 80° and 95° C have shelf-life at 4.5° C of 16, 21 and 27 days, resp., vs. 7 days for the control.

Decrease in pH, and increases in titratable acidity and viable counts in the soaking water accompanied decreases in quality of soybean curds. IFT

15

[Method for producing a liquid low-calorie oil-in-water emulsion.]

Unilever NV

Netherlands Patent Application 7 613 195 (1977)

[NI]

A low-calorie coffee whitener is obtained by mixing a protein-containing basic compound and a fat-containing basic compound and optionally heat stability imparting salts or gums at a ratio such that the product has a max. calorie content of 100 kcal/100 g, contains >3.5% by wt. protein of which >50% is in the form of micelles, contains >0.1% by wt. fat (or 2.6 times that percentage in case the protein content is >15%) and contains <6% by wt. lactose. The protein-containing component is preferably milk concentrated by membrane filtration. The fat-containing component cream has a fat content of 20-50% by wt., or the fat may be of vegetable origin and have poly-unsaturated fatty acid content of >40% by wt. W&Co

16

Note on the chemical analysis and acceptability of soymilk.

Uma Kapoor; Datta, I. C.; Quadri, M. A.; Kushwah, H. S.

Indian Journal of Agricultural Sciences 47 (9) 475-476 (1977) [4 ref. En] [Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur 482 004, India]

Soymilk was prepared by 2 methods: (i) by soaking seeds overnight, holding in boiling water for 10 min; a slurry was then prepared with boiling water (1:8) and passed through 4 folds of muslin, the soymilk then being heated for 30 min and 3.5 g sugar/l. added; or (ii) by soaking overnight in 0.03% solution of sodium bicarbonate, boiling for 60 min, dehulling and treatment as for (i). Organoleptic trials on soymilk, soymilk + skim milk and skim milk showed that although skim milk proved the best, soymilk was very good. Treatment (ii) improved taste and flavour marginally but adversely affected appearance and consistency. Skim milk +

soymilk (1:3) improved palatability. Soymilk (i) contained 1.88 g protein/100 g, 2.04 g fat/100 g, 34.68 mg Ca/100 ml and 31.14 mg P/100 ml. Skim milk + soymilk had more protein (2.23 g/100 g), fat (2.70 g/100 g) Ca (45.66 mg/100 ml) and P (38.67 mg/100 ml). SP

17

Effect of carbohydrates and phosphates on acid production by lactic acid bacteria in soy milk.

Mital, B. K.; Rajendra Prasad; Surjan Singh

Journal of Food Science and Technology, India 14

(4) 182-184 (1977) [7 ref. En] [Dep. of Food

Sci. & Tech., G.B. Pant Univ. of Agric. and Tech., Pantnagar, Nainital, Uttar Pradesh, India]

The effect of mixing carbohydrates ((i) glucose, (ii) sucrose, and (iii) lactose, each at 0.5, 1 and 2% levels) on acid production and pH of soymilk fermented by *Streptococcus thermophilus*, Sy-1, *Lactobacillus acidophilus* and *L. plantarum* and mixed cultures of these was studied. Acid production was max. at 1% level of added carbohydrate, which was selected for further study. Max. acid production was given by: *Strep. thermophilus* with (i) and (iii) (developed acidity (DA), 0.51 and 0.47% resp.); by Sy-1 with (iii) (DA, 0.62%); by *L. acidophilus* with (i) and (ii) (DA, 0.87% and 0.73% resp.); and by *L. plantarum* with (i) and (iii) (DA, 0.96% in both). Acid production was irregular when mixed cultures were used. Soymilk enriched with (i)-(iii) and fermented with the first 3 cultures listed developed a lower pH. CFTRI

18

[Process for preparation of low-calorie confectionery cream.]

Societe des Produits Nestle SA

Swiss Patent 588 823 (1977) [Fr]

The cream is obtained by homogenizing at a pressure of >100 bar an aqueous mixture comprising, by wt., 50-90% water and (by wt. of DM) 10-35% amylaceous matter, >5% protein, and >5% fat of which >1% is emulsifying fat, and then heating the homogenized mixture at 80-130° C for >10 min, preferably 115° C for 12 min. Preferably, the mixture also contains sugars, e.g. sucrose, glucose, fructose or lactose, aromatizing and colouring agents, minerals, fruit, and preservatives. The amylaceous matter may be cocoa filter cake or fruit puree; the proteins may be dried skim milk, sodium caseinate, defatted soya flour or fish protein extracts. The fat used is e.g. coconut stearins, refined coconut, vegetable oils or animal fats, while suitable emulsifiers are monoglycerides, glycerolactopalmitate or lecithins. Cream which contains sugar has 50-250 kcal/100 g. W&Co

19

Non-dairy creamer composition.

Gardiner, D. S. (General Foods Ltd.)

United States Patent 4 046 926 (1977) [En]

The incorporation of 1-4% of a mixture of sodium carbonate and dipotassium hydrogen phosphate in dried non-dairy creamer compositions containing 3-15% (by wt.) of sodium caseinate is claimed to increase the feathering resistance of such creamers when added to coffee. EJM

20

[Synthetic foods and simulated meats.]

Szabo, A.

Husipar 26 (6) 271-275 (1977) [19 ref. Hu, en, de, ru] [Megyei Elelmiszerellenőrző és Vegyvizsgáló Intézet, Kiss J. u. 3, 9022 Győr, Hungary]

The potential of synthetic and simulated foods to meet current and future protein deficits is discussed, with reference to: food consumption in various regions of the world; manufacture and characteristics of simulated foods; manufacture of textured vegetable protein-based synthetic meat products; and the amino acid composition of soybean protein isolate. AJDW

21

[Coconut milk beverage.]

Kao Soap Co. Ltd.

Japanese Patent 5 246 304 (1977) [Ja]

Coconut milk is combined with a specified fungus and heated at 40-70°C to bring about extraction of fungal ingredients. The resultant extract is used in the preparation of nutritious beverages. IFT

22

The canning of coconut cream.

Timmins, W. H.; Kramer, E. C.

Philippine Journal of Coconut Studies 2 (4) 15-25 (1977) [5 ref. En] [Tropical Products Inst., Ind. Development Dep., Culham, Oxfordshire, UK]

An oil in water emulsion prepared from coconut kernel using a method of Adair & Timmins [see *FSTA* (1975) 7 5J791] was centrifugally clarified and separated. (i) Low fat, (ii) medium fat and (iii) high fat coconut creams were then prepared. The creams were heated to 55°C and various emulsifier stabilizer mixtures added (Triodan 55, bleached soya lecithin, Col Flo 67, Purity Gum 539, gums tragacanth and karaya, carrageenans Lygomme 267/3, Lygomme 34 and Satiagum B, Span 60, and Tween 60). After 2-stage homogenization (at 3500 followed by 500 lb/in² at 50°C) the cream was heated to 60°C on a water bath to prevent discoloration and then canned and processed to F_{0.5}. Medium fat creams were also prepared from pared kernels and then processed. The effect of heat on colour development was studied by heating cream samples from 20° to 90°C at a constant rate of 1.5°C/min. Fresh kernels were blanched to examine its effects on the final colour of cream.

Results with starch as sole additive showed severe coagulation and discoloration of the products. However creams with smooth textures were obtained for (i) with a mixture of 1% Col Flo 67 and 1% Trisdan 55, and an even texture and colour similar to unprocessed cream for (ii) using 4% Purity Gum 539, 0.25% Span 60 and 0.25% Tween 60. Generally the gums were effective in preventing cream coagulating. The carrageenans gave smooth products with a range of textures, the most viscous product being produced by Lygomme 267/3. Gum tragacanth produced the most discoloured product and karaya the least discoloured and lowest viscosity product. No discoloration of cream prepared from unpared kernels was noted in controlled heating trials even $\leq 96^\circ\text{C}$ but some discoloration did occur in F_{0.5} processed cream. Kernels pared before extraction reduced discoloration during heat processing. Storage at 37°C for 10 days did not produce any swelling or physical damage to canned coconut cream. SP

23

[Characteristics of production of butter with partial replacement of milk fat by vegetable fat.]

Krashenin, P. F.; Vyshemirskii, F. A.; Fursova, S. A.; Pokrovskii, A. A.; Korobkina, G. S.; Bents, M. Ya.; Litvak, I. G.; Gavrilentov, N. P.

Trudy, Vsesoyuznyi Nauchno-issledovatel'skii Institut Maslovel'noi i Syrodel'noi Promyshlennosti No. 15, 34-37, 66, 70 (1974) [3 ref. Ru, en] [VNIIMiSP, Uglich, USSR]

After preliminary trials, the following procedures were adopted for production of 'Dieteticheskoe' (dietetic) and 'Zdorov'e' (health) butters with milk fat/vegetable fat ratios of 75/25 and 65/35, resp. For phase reversal production, refined deodorized sunflower seed oil or maize oil are added in the required proportions to 30-35% fat cream, the mixture is pasteurized at 85-90°C, concentrated by separation to a moisture content of 15-15.2% and made into butter in T1-0M-2T buttermaker working in summer with final butter temp. of 10-13° and 9-12°C, resp. (exact conditions varying according to factory facilities). Dieteticheskoe and Zdorov'e butters made in the Volkovysk dietetic milk factory on a Simon Freres installation and in the authors' Institute on a phase-reversal line had a clean milk taste and aroma; the consistency was softer at 12°C than that of conventional sweet-cream butter, and the heat stability was lower. The products were successfully tested in clinics of the Nutrition Institute of the USSR Academy of Medical Sciences. 20-kg blocks retained their initial quality in storage for 1 month at -3° to -5°C. Storage life for 200-g prints is set at 15 days at -10° to -15°C in wholesale stores and at 10 days at 5°C under market or canteen conditions. SKK

24

Health laws and regulations - Australia.

World Health Organization

International Digest of Health Legislation 28 (3) 425-441 (1977) [En]

A selection of health laws and regulations is presented including the following which relate to food hygiene: South Australia - Regulations under the Food and Drugs Act, 1908-1972 (dated 27 Nov., 1975) - as amended by the introduction of a new Regulation 46A (non-dairy coffee whitener), a revised version of Regulation 60 (cake, pastry, biscuits and other flour products excluding bread) and Regulation 64 (essences) and introduction of a new Regulation 84A (foods not elsewhere standardised); Regulations under the Food and Drugs Act, 1908-1972 (dated 14 Oct., 1976) is amended by introducing a revised version of Regulation 40 (margarine); Regulations under the Food and Drugs Act, 1908-1972 (dated 5 Aug., 1976) is amended by the insertion of a new Regulation 8A (date marking of packaged perishable foods). VJG

25

Sensory acceptability of fruit flavored oilseed milk formulations. [Lecture]

Schmidt, R. H.; Bates, R. P.

Proceedings of the Florida State Horticultural Society 89, 217-219 (1976) [11 ref. En] [300 Food Sci. Building, Food Sci. Dep., Univ. of Florida, IFAS, Gainesville, Florida 32611, USA]

Soy milk, peanut milk and 25% toned milks prepared from cows' milk extended with commercial peanut flour or soy protein concentrate were prepared. Yoghurt products were made from these by fermentation with *Lactobacillus bulgaricus* and *Streptococcus thermophilus* in the presence of 2.5% added glucose, to a pH of 4.7. Sensory acceptability was evaluated by difference and preference testing using cows' milk as the reference. Oilseed milks were generally judged inferior to cows' milk, and peanut milks were judged inferior to soy milk preparations. Commercial yoghurt fruit flavourings of strawberry, raspberry, blueberry and orange greatly improved the sensory acceptance of the milk-like beverages and yoghurt products. However, differences between flavourings were not significant. Increases in TS and flavour level significantly improved sensory ratings of oilseed milks. High solids soy milk compared favourably with control and soy-toned products. Yoghurt-like consistency was attained in fermented milk simulates, although more acceptable yoghurt was manufactured from toned milks than from oilseed milks. Homogenization of control and soy-toned milk significantly improved acceptance of yoghurt-like products. [See FSTA (1978) 10 8J1164]. AS

26

Protein product.

Buckley, K.; Lowe, P. J. (Mars Ltd.)

British Patent 1 494 502 (1977) [En]

Whey is acidified with HCl to pH 4.0, heated to the boil, CaCl_2 is added, the coagulated protein is recovered by centrifugation and, after washing, the precipitate is neutralized to pH 7.0 with sodium hydroxide solution and dried at 60°C.

Alternatively, the pH adjustment may be done by neutralizing normal commercially available, dried acid whey protein, for example at the time of the formulation of the product. The whey protein is suitable as a matrix for food products, as a basis for simulated animal products and as a binder in meat-containing products. Details of application are given in 8 examples. FL

27

Processing coffee whiteners.

Bassett, H. J.; Shelley, D. S.; Anderson, M. E.

American Dairy Review 40 (2) 35-37 (1978) [2 ref. En] [Univ. of Missouri, Columbia, Missouri 65201, USA]

9 steps taken in the processing of liquid and frozen coffee whiteners using a model pilot scale processing unit are described, the aim being to determine the capability and suitability of the unit for developing fluid milk and frozen dessert mixes. The 9 steps are preparation of dry formula; high speed blending; processing consisting of pre-heating; homogenization (2000 + 500 lb/in²), pasteurization, cooling and packaging; analysis of product; storage of coffee whiteners at 42°F or -10°F; testing in coffee; large scale commercial runs; cost calculations; and energy consumption. These and other considerations establish the unit's potential as a versatile research laboratory and pilot plant tool. AGP

28

Method for producing a fat similar to the fat in natural milk.

Blohorn SA

British Patent 1 495 493 (1977) [En]

A method for producing a fat similar to the fat in natural milk consists of subjecting to transesterification a mixture of e.g. 65% refined fractionated solid palm oil, 30% refined coconut oil and 6% industrial tributyrin of alimentary quality. The aim is to produce, particularly by making use of raw materials of vegetable origin, a fat very similar to butterfat which may be added to dried skim-milk to obtain a milk which may be used instead of fresh natural milk. FL

29

Soymilk: a comparison of processing methods on yields and composition.

Johnson, K. W.; Snyder, H. E.

Journal of Food Science 43 (2) 349-353 (1978)

[15 ref. En] [Dep. of Food Tech., Iowa State Univ., Ames, Iowa 50011, USA]

Soymilk was produced by (i) heating intact soybeans after soaking but before disruption, (ii) heating soaked soybeans to 80°C during disruption, and (iii) disruption of soaked soybeans with no prior heating. The results show that (i) has low yields of solids and low recoveries of protein in comparison with (ii) and (iii). Heating of soybeans preceding disruption seems to keep protein bodies intact when soybean cells are disrupted.

Homogenization will redisperse protein bodies that have been fixed by heat, and homogenization at high pressure (8000 lb/in²) and high temp. (75°C) is more effective than lower pressures and temp.

Data are presented on rates of water or buffer uptake by steeping soybeans, on times and temp. needed to eliminate the green-beany flavour and on the solids analysis by spectrophotometry. IFT

30

Dairy analogs from Illinois soybean beverage base. (In 'World soybean research' [see FSTA (1978) 10 10J1431].) [Lecture]

Wei, L. S.; Nelson, A. I.; Steinberg, M. P.

pp. 850-860 (1976) [5 ref. En] [Dep. of Food Sci., Univ. of Illinois, Urbana, Illinois, USA]

The Illinois process for the preparation of a soybean beverage base by Nelson et al. [see FSTA (1976) 8 5H789] and its use in formulating and processing soybean milk and several other dairy analogues are discussed. Preparation of various dairy product analogues, including milk, yoghurt, ice cream, diet margarine, and a flavoured dip, from the soybean beverage base are outlined. SP

31

Method for producing a fat similar to the fat in natural milk.

Blohorn SA

British Patent 1 495 493 (1977) [En]

Fats similar to that of natural milk are produced by the transesterification of mixtures containing palmitic acid. IFT

32

Studies of some properties of milk/soymilk mixture.

Abou-El-Ella, W. M.; Farahat, S. M.; Ghandour, M. A.

Milchwissenschaft 33 (5) 295-297 (1978) [10 ref. En, de] [Dep. of Food Sci., Ain Shams Univ., Cairo, Egypt]

Effects on clotting time and curd firmness of additions of 0, 10, 20, 30, 40 or 50% soy milk and of 6, 8 and 10% NaCl to either buffaloes' milk (BM) or cows' milk (CM) were studied. Effects of different renneting temp. (95°, 100° or 105°F) and of different amounts of rennet (50, 60 or 70 ml/100

kg) were also examined. Satisfactory clotting times were obtained when 20% soy milk was added to BM and 10% to CM; higher levels of addition resulted in an increase in the clotting time. Optimum conditions for the coagulation of BM and CM were: addition of 8% NaCl, renneting temp. of 105°F and use of 70 ml rennet/100 kg. MEG

33

Method of producing soybean milk yoghurt.

Kanda, H.; Wang, H. L.; Hesseltine, C. W.

(United States of America, Secretary of Agriculture)

United States Patent 4 066 792 (1978) [En]

Milk extracted from soybeans is mixed with whey solids (preferably 2%), sucrose (4-5%) and sterilized at 90-121°C. The hot milk is mixed with a dilute aqueous gelatin solution (up to 1.5%) and, after being rapidly cooled to 30-35°C, inoculated with an equal mixture of 2 strains of *Lactobacillus acidophilus* (NRRL B-1910 and NRRL B-2092). The mixture is subsequently incubated at 35-40°C for 16-24 h to produce an imitation yoghurt. EJM

34

Synthetic cream.

Kubota, H.; Yamaguchi, M.; Teteishi, T. (Fuji Oil Co. Ltd.)

British Patent 1 500 427 (1978) [En]

A method for producing a high-fat synthetic cream comprises mixing 28-60 of an edible oil or fat or their mixture, 72-40% milk, skim-milk, water or their mixture, plus lecithin, polyglycerol fatty acid ester, polyoxyethylene sorbitan fatty acid ester, sucrose fatty acid ester, sorbitan fatty acid ester, malic acid monoglyceride or propyleneglycol fatty acid ester, or their mixtures. The product may be used as a coffee whitener or as topping, and may be whipped. FL

35

Simulated cheese preparation using calcium caseinate.

Wynn, J. D.; Bell, R. J.; Vernon, H. R.; Denton, G. T.; Coster, L. R. (Anderson, Clayton & Co.)

New Zealand Patent 178 491 (1978) [En]

Food claimed to be similar to pasta filata or Cheddar cheese is a gas-free homogeneous blend of a water-fat emulsion, the fat being 12-35% by wt. of the food, calcium caseinate 15-33% by wt. of the food, and >1 acids selected from lactic, citric and malic acids, alone or together with adipic acid to comprise 0.5-1.8% by wt. of the food. The fat has a Wiley m.p. of 90-110°F, and the food has a pH of 4.8-5.7. W&Co

36

Infant weaning food from soybean and cheese whey.

Kapoor, C.-M.; Gupta, S. K.

XX International Dairy Congress E, 968-969

(1978) [En] [Dairy Tech. Div., Nat. Dairy Res. Inst., Karnal, India]

It is estimated that 100 g of this weaning food will supply the min. daily requirements of all nutrients, except calories, for children up to 4 yr old. Average composition to meet Indian Standards Institution standards for infant foods is: 24% protein; 18% fat; 48% carbohydrate (mainly lactose); 4.23% ash; 4% moisture; 0.1% fibre; and 0.35% non-protein N. The cost of the food, excluding packaging, was 4.85 rupees (US \$0.55)/kg. [See FSTA (1978) 10 10P1408.] AGP

37

Soy protein, wheat starch and vital wheat gluten in convenience foods.

Hall, J. B.

Cereal Foods World 22 (4) 144-146, 148 (1977)

[3 ref. En] [Far-Mar-Co. Inc., 960 N. Halstead, Hutchinson, Kansas 67501, USA]

The general properties and uses in the convenience food industry of soy flour, soy protein isolates and concentrates, wheat flour and vital wheat gluten are described, with reference to costs and present sales volumes. Soy flour and concentrate are mostly used as extenders in meat products, while isolates offer functional properties as emulsifiers and stabilizers in dairy and simulated dairy products. JRR

38

Suspension stability of Illinois soybean beverage.

Priepke, P. E.

Dissertation Abstracts International, B 38 (1) 128-

129; Order No. 77-15002, 121pp. (1977) [En]

[Univ. of Illinois, Urbana, Champaign, Illinois 61801, USA]

The University of Illinois (USA) has developed a soybean milk analog that is completely free of bad flavour, represents 100% protein recovery and shows excellent suspension stability. Studies on its suspension stability (SS, defined as maintenance of a uniform dispersion of solid and lipid particles in the beverage during quiescent storage) indicated that processing conditions affected SS of the beverages. A slightly alkaline slurry at the 1st homogenization gave best results; a significant linear relationship was found between the sum of pressures of all homogenizations and SS, the min. sum of pressures required for SS being 5000 lb/in² when homogenization was at 180° F; increasing homogenization temp. enhanced SS; and increasing concn. of soybean solids enhanced SS, as did addition of 4% sucrose or 0.2% NaCl. Good SS required final beverage pH of 7.4-7.7. Beverages showed <45% bound lipids, binding increasing with increased tenderness and with increased pressure and temp. of homogenization. Lipid binding is at least in part responsible for SS. Addition of oil to soybean beverage aided SS. Removal of free lipids from tenderized soybeans or cotyledons prior to beverage manufacture resulted in SS; removal of bound lipids in addition to free lipids reduced SS.

Studies with protein-lipid film formation further suggested formation of a complex of protein and lipids such that they were removed by film formation in a fixed ratio. HBr

39

Processing factors affecting the organoleptic quality of Illinois soy beverage.

Kuntz, D. A.

Dissertation Abstracts International, B 38 (1) 127-

128; Order No. 77-14973, 345pp. (1977) [En]

[Univ. of Illinois, Urbana, Champaign, Illinois 61801, USA]

Processing variables which had pronounced effects on the beverage's quality were: blanch solution, beverage pH, homogenization conditions, soy solids concn. and NaCl addition. The process conditions effecting optimal beverage quality were: blanching of cotyledons in 0.25% NaHCO₃; no adjustment of beverage pH from 7.5; homogenization at 180° F and 3500 lb/in²; and formulation with 6% soy solids and 0.1% NaCl. HBr

40

Recovery of whey proteins and their utilization in dairy products.

Cogan, U.; Weiss, J.; Calmanovici, B.; Graff, J.; Gur-Ari, G.

XX International Dairy Congress E, 930-931

(1978) [En] [Dep. of Food Eng. & Biotech., Technion - Israel Inst. of Tech., Haifa, Israel]

Whey protein concentrates (WPC) of 13-18% DM, representing 50-52% of the heat-coagulable N, were obtained by centrifuging acid whey of pH 4.5 heated for 20 min at 95° C. Higher yields, 58-60%, were possible with adjustment of the pH before heating, but this was less convenient on a large scale. A 10-13% increase in quarg yield was obtained by adding 3-4% WPC into the coagulum before curd separation. The addition of WPC improved the consistency of quarg, and did not affect its sensory evaluation. [See FSTA (1978) 10 10P1408.] JMD

41

Can cheap butteroil replace the real thing?

Brown, J.

Bakers Review June, 18 (1978) [En]

The potential for use of low-cost butter oil (denatured by addition of vanillin or carotene) in the bakery industry is briefly discussed, with reference to small-scale trials. Madeira cakes made with butter, butteroil and cake margarine were compared; butter and butter oil gave similar cake vol., and both gave inferior vol. to the cake margarine. Little effect of fat type on flavour was observed. The butter oil studied produced poor puff pastry and croissants, as a result of its low m.p.; possibly, use of low temp. at all stages of processing would give better results. It is concluded that it may be practicable to substitute butteroil for butter in bakery products, if water and NaCl contents are adjusted accordingly. Costs, marketing aspects and possible effects on quality are briefly considered. AJDW

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FAB 7

SYNTHETIC DAIRY PRODUCTS

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FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of

Commonwealth Agricultural Bureaux, Farnham Royal, Bucks; Gesellschaft für Information und Dokumentation, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen.

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Coverage of the subject has been restricted to that of Food Science and Technology Abstracts, which covers over 1200 of the important food journals, patents from 20 countries and books published world-wide. Every effort is made to include all significant references, but editorial discretion is used on the many articles of borderline interest. If the reader particularly needs an exhaustive search of the subject, we will be pleased to provide any other references that we have available. We would, in any case, encourage readers to write or telephone us with any comments or queries that they may have.

H. BROOKES

EDITOR

1

Evaluating cheese-like emulsions from animal blood proteins and whey solids.

Knapp, F. W.; Schmidt, R. H.; Mauldin, W. J.; Ahmed, E. M.

Journal of Food Protection 41 (4) 257-258 (1978) [11 ref. En] [Food Sci. & Human Nutr. Dep., Univ. of Florida, Gainesville, Florida 32611, USA]

Animal blood globin powder and blood plasma concentrate prepared from cattle blood were incorporated, along with modified whey solids, hydrolysed cereal solids, butter, cellulose gum and water into heat processed cheese-like emulsions. Globin protein in the emulsion ranged from 12.2 to 16.4% while the plasma protein range was from 1.8 to 6.2%. The ingredients were blended while the pH was being raised to pH 6.8 and the mixtures were processed at 116° C for 15 min. Texture profile parameters of hardness, springiness and cohesiveness were evaluated. Increased globin protein concn. decreased springiness and cohesiveness. Hardness apparently was maximal at an approximate globin/plasma protein ration of 5:1. AS

2

Legume-based imitation and blended milk products.

Sosulski, F. W.; Chakraborty, P.; Humbert, E. S.

Canadian Institute of Food Science and Technology Journal 11 (3) 117-123 (1978) [15 ref. En, fr] [Dep. of Crop Sci., Univ. of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0]

Protein isolates from 10 legume spp. were evaluated as the protein component in imitation milks. While similar in protein content, the isolates exhibited a wide range in solubility, fat homogenization, viscosity and conductivity. Taste panel evaluations scored some legume protein-based imitation milks as similar to cows' milk in colour and viscosity but all were deficient in odour and taste. The legumes were ranked in the following decreasing order of preference for imitation milk production: lima bean = mung bean = pea bean > northern bean = lupin > lentil = soybean > chickpea > field pea > faba bean. An imitation milk, based on ethanol-wash protein concentrate from northern bean, was blended (1:1) with cows' milk to demonstrate improved taste panel scores and chemical scores over those of protein isolate-based imitation milks. AS

3

Non-dairy coffee whitener containing acetate salt.

Tonner, G. F. (Carnation Co.)

United States Patent 4 092 438 (1978) [En]

A non-dairy coffee whitener contains fat, carbohydrate, protein, emulsifier and stabilizing salt in which a portion of the stabilizing salt is a water-soluble acetate, including sodium acetate, potassium acetate, calcium acetate and mixtures thereof. It has excellent stability to thermal and acid stresses of coffee. IFT

4

[Coffee whitener.]

Meiji Milk Products Co. Ltd.

Japanese Patent 5 310 146 (1978) [Ja]

Powdered coffee whitener compositions contain milk protein, milk fat, purified vegetable oil, lactose, sugar and a starch dehydrate. IFT

5

[Preparation of cheese-like product using soybean milk.]

Yu, J.-H.; Shin, W.-C.; Pyun, Y.-R.; Yang, R.

Korean Journal of Food Science and Technology 10 (2) 231-236 (1978) [20 ref. Ko, en] [Dep. of Food Eng., Coll. of Eng., Yonsei Univ., Seoul, S. Korea]

The preparation of a cheese-like product from defatted soybean milk and changes occurring during 6 wk ripening were studied. Defatted soybean milk was fermented at 37° C for 4 h with *Streptococcus lactis* YUFE L-4 without addition of any other C sources. Optimum concn. of coagulant such as $MgCl_2 \cdot 6H_2O$ and $CaCl_2$ were 0.0125M and 0.0375M, resp. Coagulating for 30 min was sufficient to give a curd. Optimal reaction temp. for coagulating was 50° C. After 6 wk ripening, moisture content was approx. 62-63%. Water- and 10% trichloroacetic acid (TCA)-soluble N contents of soybean cheese with *Aspergillus saitoi* protease were higher than those of *Mucor rennet*. Water-soluble N content of *A. saitoi* protease cheese was 50.5%, and 10%-TCA soluble N was 27.5%. AS

6

Effect of methionine and N-acetylmethionine fortification on the flavor of soy bread and soy milk.

Hippe, R. L.; Warthesen J. J.

Journal of Food Science 43 (3) 793-796 (1978) [12 ref. En] [Dep. of Food Sci. & Nutr., Univ. of Minnesota, St. Paul, Minnesota 55108, USA]

A sensory panel was used to establish the detection threshold levels of methionine, recrystallized methionine and N-acetylmethionine in both the crust and the interior crumb of a fortified soy bread (from wheat flour containing 20% soy). Methionine was detectable at 0.10% addition in the bread crust and 0.20% in the interior crumb. Recrystallization of the methionine was not effective in reducing the flavours due to methionine addition. The N-acetylmethionine detection threshold levels were 3-7 × higher than methionine, and neutralization of the N-acetylmethionine allowed even higher levels of incorporation. Soy milk was used to evaluate the influence of methionine level and heat treatment of fortified soy milk on flavour development. Increasing the heating temp. or fortification level decreased the time required to produce detectable flavour differences. Gas chromatography and MS were used to identify methional in a heated fortified soy milk. IFT

7

Dairy product analogs: a weaning food from soybean and whey.

Kapoor, C. M.; Gupta, S. K.

Indian Dairyman 30 (3) 179-181 (1978) [2 ref. En] [Dairy Tech. Div., Nat. Dairy Res. Inst., Karnal, Haryana, India]

A flavoured and highly acceptable low-cost weaning food (for children aged 1-4 yr) has been made by mixing

35 parts of whole soybean solids with 65 parts of Cheddar cheese whey solids from buffaloes' milk, and supplementing the mixture with vegetable oil, vitamins, sodium citrate, FeSO_4 and methionine. A flow diagram of the process is given and physical and chemical properties of the product are tabulated. The storage life of the weaning food, packed in cans, was 8 months at 5° C and 6 months at 30° C; the weaning food could be kept in polyethylene bags for 6 months at 5° C but only 2 months at 30° C. The strawberry flavoured product was acceptable after storage under N_2 for 12 months at 5 or 30° C, whereas the unflavoured control was acceptable for only 8 months at 5° C and 4 months at 30° C. Vanilla and pineapple flavours were slightly less acceptable than strawberry. CFTRI

8

Preparation of imitation Mozzarella cheese.

Rule, C. E.; Werstak, C. E. (SCM Corp.)

United States Patent 4 075 360 (1978) [En]

The formulation for a typical imitation Mozzarella cheese, suitable for Pizzas, is as follows hydrogenated cottonseed oil, 22.63%; sodium caseinate, 19.40%; calcium caseinate, 4.85%; lactic acid, 0.32%; calcium chloride, 0.87%; potassium sorbate, 0.133%; NaCl, 0.742%; flavouring, 0.297%; water, remainder. At least 70% of the caseinate must be sodium caseinate. Two mixes, a protein/water and a protein/oil mix, are prepared, and both subjected to heat treatment before being combined under agitation, followed by the addition of lactic acid to pH 5.0–6.0. The product, on cooling, can be grated and possesses the characteristic properties of Mozzarella cheese. EJM

9

Control of chalkiness in soymilk.

Kuntz, D. A.; Nelson, A. I.; Steinberg, M. P.; Wei, L. S. *Journal of Food Science* 43 (4) 1279–1283 (1978) [13 ref. En] [Dep. of Food Sci., Univ. of Illinois, Urbana, Illinois 61801, USA]

Chalkiness is a defect used to describe a food which coats the mouth and throat with fine, grainy particles. This study evaluates the processing and formulation variables which affect chalkiness of Illinois process soy milk produced from dehulled soybeans. Alkalinity of the blanch solution, homogenization conditions, soy milk pH, and solids concn. had the most pronounced effects on chalkiness. Increasing blanch alkalinity decreased chalkiness; beverages adjusted to higher final pH were less chalky. Homogenization at higher temp. or pressures also significantly reduced chalkiness. Chalkiness increased with soy solids concn. Beverages produced using conditions to effect optimal quality were compared to low quality products. Centrifugal desludging reduced chalkiness to an imperceptible level. Particles retained by 150 mesh filters were primarily responsible for chalkiness. The process conditions leading to min. chalkiness were: direct blanch of cotyledons in 0.25% NaHCO_3 ; homogenization at 180° F and 3500 lb/in²; formulation with 6% soy solids; beverage pH of 7.5. IFT

10

[Synthetic condensed milk.]

Wakabayashi, H.

Japanese Examined Patent 5 320 583 (1978) [Ja]

An aqueous casein solution containing potassium citrate, potassium phosphate and sodium carbonate is mixed with an aqueous lactose solution containing calcium chloride and magnesium chloride. IFT

11

Process for making a food product resembling cheese.

Wynn, J. D.; Bell, R. J.; Denton, G. T.; Vernon, H. R.; Custer, L. R. (Anderson, Clayton & Co.)

British Patent 1 517 956 (1978) [En]

Imitation Mozzarella and Cheddar cheeses are prepared from mixtures containing calcium caseinate as the major ingredient (about 24%), hydrogenated oil, flavourings, etc. Details are given in 7 examples. FL

12

Dry dessert mix composition.

Haber, G. J. (International Flavors & Fragrances Inc.)

United States Patent 4 081 566 (1978) [En]

The composition consists of 5–30% (by wt.) of pregelatinized and/or modified starch, 0.1–15% of hydrocolloid gum, sufficient edible acid to bring the pH of the reconstituted mix to 3.0–5.0, sugar, yoghurt flavour powder and other minor additives. On reconstitution with milk, a yoghurt-like dessert is obtained. EJM

13

Butter-like food product.

Badertscher, E.; Easton, G. A. (Societe des Produits Nestle SA)

British Patent 1 525 315 (1978) [En]

A process for the production of a product of the butter or margarine type comprises mixing a portion (i) containing fats (butter, oil, fractionated butter oil, especially its oleic acid fractions, butter, soybean, oil, lard) with an aqueous portion (ii) with a viscosity of 2000–20 000 cP (obtained e.g. by mixing water with casein, calcium caseinate, cooking salt, sodium citrate etc.) at 15–40° C, resulting directly in the formation of an emulsion of the water-in-oil type. Packaging is carried out aseptically. The products have a texture similar to that of butter or margarine, the texture remaining stable for several months without serum exudation. Providing suitable fats have been used, spreadability is claimed to be good even direct from the refrigerator. Low-calorie products containing only 40% fat are in the form of thick pastes. FL

14

Substitutes for milk, cream, and cheese. Standards of identity.

United States of America, Food & Drug Administration

Federal Register 43 (182, Sept. 19) 42118–42126 (1978) [En] [Washington, DC, USA]

The Food & Drug Administration is proposing to establish standards of identity which would establish descriptive names for milk, cream, and cheese substitutes; permit use of any safe and suitable optional ingredients in their formulation; establish compositional requirements, including nutritional equivalence to the foods they simulate; and establish appropriate labelling requirements. CAS

15

Sensory acceptance of tomato salad-type yoghurt systems from oilseed/dairy combinations. [Lecture] Schmidt, R. H.; Mathews, R. F.; Davidson, S. M. *Proceedings of the Florida State Horticultural Society* 90, 201-204 (1977) [9 ref. En] [Dep. of Food Sci. & Human Nutr., Univ. of Florida, IFAS, Gainesville, Florida 32611, USA]

Yoghurt systems were prepared from whole milk fortified with oilseed protein (soy protein isolate or peanut flour) and from oilseed protein/dried skim-milk blends. Dried skim-milk replaced oilseed protein in control preparations. Unflavoured; tomato and spice; tomato, spice and vegetable; and fruit flavoured yoghurt systems were compared by sensory evaluation. The effects of heat processing and homogenization on sensory acceptance and texture measurement of tomato flavoured yoghurt systems were evaluated. Addition of tomato flavouring improved the sensory flavour rating of oilseed fortified yoghurt systems. Addition of diced cucumbers, celery and tomatoes to tomato flavoured yoghurt did not significantly affect preference ratings. Tomato and fruit flavoured oilseed fortified yoghurt systems were considered inferior to similarly flavoured controls by difference analysis. Tomato flavoured yoghurt systems made from soy protein/skim-milk blends received higher preference ratings than did soy protein fortified yoghurt systems. Heat processing at 70° C for 10 min and homogenization improved sensory acceptance of tomato flavoured oilseed fortified yoghurt systems. Soy protein fortified yoghurt systems had higher objective texture values than did other yoghurt systems evaluated. Reprocessing lowered objective texture values. [See FSTA (1979) 11 5]629.] AS

16

Coffee whitener.
Carnation Co.

British Patent 1 520 095 (1978) [En]

Protein-free fat emulsion coffee whiteners are described, stabilized by the inclusion of dextrinized starch which has been modified by reaction with a dicarboxylic acid cyclic anhydride. IFT

17

Process for preparing a condensed milk.

Kruseman, J.; Bertschy, P. Y.; Hidalgo, J.; Rham, O. de (Societe des Produits Nestle SA)

British Patent 1 525 526 (1978) [En]

In 1 of the examples, single-cell yeast proteins (after reducing their nucleic acid content) are suspended in water (pH 7.2) and subjected to enzymic hydrolysis with a proteolytic enzyme of *Bacillus cereus* at 40° C, the

suspension is boiled for 20 min to inactivate the enzyme and eliminate undesirable odours, is centrifuged, and the supernatant phase is dried. The protein material is mixed with lactose, butter oil, sucrose and water and the mixture is pasteurized. The stability in hot coffee may be increased by adding a basic salt, such as sodium or potassium carbonate or bi-carbonate of these salts. In other examples of application soya proteins are used. FL

18

Preextraction boiling of soybeans as a pretreatment in soymilk preparation.

Escueta, E. E.; Banzon, J.

Philippine Agriculturist 61 (3/4) 104-114 (1977)

[27 ref. En] [Dep. of Food Sci. & Tech., Coll. of Agric., V.P. at Los Banos, College, Laguna, Philippines]

The effect of immersion boiling as a preprocessing treatment in soybean milk manufacture was investigated. Both the presoaked and non-soaked beans showed large decreases in solids- and protein-extractability after the first 5 min of boiling before extraction. The decrease was faster in soaked than in non-soaked beans. The high initial moisture content of the soaked beans accelerated the insolubilization of the soluble solids (SS) and proteins during boiling. The trypsin inhibitor (TI) activity of the soymilk was completely inactivated by the boiling treatment before insolubilization of the SS, and protein extraction was drastically lowered (in 2 min for soaked, 5 min for non-soaked beans). Restricting the boiling time to 5 min would therefore produce a soymilk with protein content comparable to that of cow's milk, with no TI activity. Short time boiling had no effect on pH, and assured min. damage to the essential amino acids. RM

19

Recombined whipping cream.

Hansen, R.

World Galaxy No. 7, 103 (undated) [En, De, Fr]

[Grindsted Products Div., Grindstedverket A/S, Denmark]

A method for making whipping cream of excellent whippability from butter, dried skim-milk, emulsifier, stabilizer and water is described. It involves preparing an aqueous phase (skim-milk and stabilizer + water) and a fat phase (butter + emulsifier), mixing the 2 phases, pasteurizing or UHT treating and homogenizing the mixture, and cooling to 5°C and ageing. The whipped product is claimed to have overrun and consistency equal to those of natural cream and a superior stability. FL

20

Situation concerning imitation and substitute milk products in Europe. [Lecture]

Schelhaas, H.; Dijkstra, H.

XX International Dairy Congress, Conferences Conferences 44EC, 15pp. (1978) [En]

The development of imitation and substitute milk products is mentioned, and official definitions are given. Factors influencing replacement of milk and dairy products by imitations are discussed, and future market trends and legislation are considered. [See FSTA (1979) 11 6P972.] JMa

21

[Imitation milk products: view of the dairy industry, and possible regulations.] Milchersatzprodukte: Ansicht der Milchindustrie und mögliche Reglementierungen. [Lecture] Nienhaus, A.

XX International Dairy Congress, Conferences Conferences 46EC, 13pp. (1978) [13 ref. De]

After reviewing the relative importance of milk, vegetable fats and non-milk proteins in world nutrition, the author discusses the prospects for imitation milk products. The only imitation products widely used at present are coffee whiteners and imitation whippings, which, even in countries where they have been marketed for some time (e.g. Denmark and the Federal Republic of Germany), have a market share of only 1–3%. In the USA, sales of imitation milk are negligible, but better results are hoped for from imitation cheeses. Problems of drafting suitable regulations to control imitation products are discussed. [See FSTA (1979) 11 6P972.] ADL

22

Definitions of substitute and imitation milk products. The view of the Food and Agriculture Organization of the United Nations (FAO). [Lecture] Winkelmann, F.

XX International Dairy Congress, Conferences Conferences 43EC, 7pp. (1978) [16 ref. En] [FAO, Rome, Italy]

Various definitions and descriptions (legal or otherwise) for imitation and synthetic dairy products are discussed, and FAO/WHO suggestions are mentioned. A detailed view is given of the FAO outlook on protection of consumers and fair trade practices, milk products vs. imitations, international standards for 'filled' milks, replacement of milk fat, use of protein raw materials in imitation milk products, and the competitive position of imitation milks. [See FSTA (1979) 11 6P972.] JMa

23

Cheese substitutes in USA. [Lecture] Siapantas, L. G.

XX International Dairy Congress, Conferences Conferences 45EC, 4pp. (1978) [5 ref. En]

Milk production and utilization figures for 1950 and 1975 show that so far the 100% increase in cheese consumption in the USA (per capita) has mainly been met by lower production of other dairy products. The growing gap between demand and production has now necessitated production of cheese substitutes. Tables are given comparing composition of real and substitute cheeses, and the outlook for substitutes is discussed. [See FSTA (1979) 11 6P972.] JMa

24

Occurrence of aflatoxin in hypoallergenic milk substitutes.

Hayes, A. W.; Unger, P. D.; Stoloff, L.; Trucksess, M. W.; Hogan, G. R.; Ryan, N. J.; Wray, B. B.

Journal of Food Protection 41 (12) 974–976 (1978) [13 ref. En] [Dep. of Pharmacology, Univ. of Mississippi

Med. Cent., Jackson, Mississippi 39216, USA]

Aflatoxin B₁ was detected, and its identity confirmed, in hypoallergenic milk substitutes composed, among other things, of the following ingredients susceptible to possible aflatoxin contamination: soy protein isolate, soy and coconut oils, cornstarch, and corn syrup. Except for 1 detn., all findings were under 1 ng aflatoxin/ml formula at drinking concn. Manufacturers' reserve samples of soy protein isolate, the ingredient thought to be the most likely source of the aflatoxin, were found to be uncontaminated. Reserve samples of other ingredients were not examined. Because hypoallergenic formula may be the major nutrient of an individual with a metabolic defect at infancy, a vulnerable stage of life, available control measures should be used to avoid aflatoxin-contaminated ingredients. AS

25

[Canning of coconut cream.]

Timmins, W. H.; Kramer, E. C.

Oleagineux 33 (11) 573–577 (1978) [Fr, en, es] [Ind. Development Dep., Tropical Products Inst., Cuiham, UK]

Process is described for producing canned coconut cream which avoids destabilization and separation of the oil. The oil-water emulsion was centrifuged at 45°C and separated into aqueous and creamy phases; low-, medium- and high-fat creams were prepared by mixing the phases in varying proportions. Creams were heated to 55°C and various stabilizers were added, specifically a polyglyceryl ester, soy lecithin, various gums, modified maize starches, carrageenans and sorbitol monostearates, followed by 2-stage homogenization at 3500 and 500 lb/in². Both stationary and rotary sterilization of canned products were examined. Effects of peeling and bleaching the nuts and of production methods on the colour and stability of the creams are recorded in graphs and tables. Starches (at 0.4–4.0% by wt.) produced coagulation and discoloration, but gums (1% addition) were good anti-coagulants. Discoloration of creams was reduced by prior peeling of the nuts. Rotary sterilization at high rev/min reduced processing time and improved colour and texture of the product. Processing temp. was of prime importance. ELC

26

The effect of soymilk on lipase activity and organoleptic properties of Ras cheese.

El-Safty, M. S.; Khorshid, M. A.; Ismail, A. A.

Milchwissenschaft 34 (1) 22–23 (1979) [9 ref. En, de] [Dairy Dep. Fac. of Agric., Kafr-El-Sheikh, Tanta Univ., Cairo, Egypt]

Ras cheese was made from buffaloes' milk (control) and from milk to which 10, 20 or 30% soy milk had been added. The cheeses were ripened for 30, 60 and 120 days. Addition of soy milk increased lipase activity in the milk mixtures and in the resultant cheeses. Moisture, acidity and total volatile fatty acids (VFA) increased with increasing soy milk content during ripening. VFA (as 3.1 ml 0.1N NaOH/10 g) in control cheese at 120 days ripening were considered as the local standard. Cheeses with 20 and 30% soy milk reached this level at 60 days, confirming that greater lipase activity accelerated ripening. Flavour, body and texture at 120 days varied from slightly bitter, hard and crumbly

(control) to fully ripened (20% mix). It was considered that addition of 20% soy milk improved cheese quality. ASe

27

Fermented/enzyme-treated food products.
Andres, C.

Food Processing 39 (12) 67-69 (1978) [En]

The production of dairy-like products from soybean or groundnut 'milk' by a University of Georgia, USA, team is discussed. A blended flavoured product consisting of groundnut milk with 2% added lactose, fermented by *Lactobacillus bulgaricus* and *L. acidophilus* competed favourably with flavoured buttermilk in panel tests. Tests were also made using the fermented product as a bakery ingredient, with some success. At the University of Florida, tests have been made with simulated yoghurts from fortified cows' milk, additions being made of groundnut or soy flour, or a soy protein isolate. The use of lactase in the preparation of dairy products, to circumvent the problems of lactose intolerance, is also discussed, with reference to reduced-lactose yoghurt and buttermilk experiments. JRR

28

Process for the production of a vegetable-based sweetened condensed milk.

Rahm, O. de (Societe d'Assistance Technique pour Produits Nestle SA)

United States Patent 4 091 118 (1978) [En]

A vegetable-based, sweetened condensed imitation milk is produced by partial enzymic hydrolysis of an aqueous solution or suspension of a vegetable protein (e.g. soy protein), a mixture being prepared containing 4-9 parts (by wt.) of fats, 8-18 parts of the treated protein, 0-14 parts of lactose, 40-55 parts of sucrose and 25-32 parts of water, the proteins in suspension having been subjected to partial precipitation by the addition of CaCl_2 and the precipitated fraction removed after the enzymic hydrolysis step. A part of the vegetable constituents may be replaced by dried milk. EJM

29

Preparation of copper(II)-glycine complex.

Imamura, T.; Hatanaka, C.; Doudou, T.

Journal of the Faculty of Fisheries and Animal Husbandry, Hiroshima University 17 (1) 35-41 (1978)

[15 ref. En, ja] [Dep. of Food Chem. & Tech., Fac. of Fisheries & Anim. Husbandry, Hiroshima Univ., Fukuyama, Japan]

This paper, together with earlier papers on the preparation of Fe and Zn complexes [FSTA (1976) 8 12A721; *Journal of the Faculty of Fisheries and Animal Husbandry, Hiroshima University* (1975) 14, 15 & (1974) 13, 184], forms part of a study on the improvement of simulated milk. The method of preparing the dried complex from 0.01M CuSO_4 and 0.02M glycine is described. The complex had a molar ratio of 1:2 Cu(II)/Gly . CDP

30

[Method for producing a spreadable milk product.]
Verfahren zur Herstellung eines streichfähigen Milchproduktes.

Balla, A.; Hülsen, U.; Schmidt, H.-H.; Kruger, P. (VEB Kombinat Impulsa Betrieb; VEB Kyffhäuserhütte Artern)

German Federal Republic Patent Application 2 823 278 (1978) [De]

Low-fat spreadable dairy product is produced by first heating the cream and then lowering the temp. to that for making butter and keeping it at this level for 60 min without further processing. After this time the cream is further processed in a suitable plant. W&Co

31

Preparation of imitation cheese.

Wynn, J. D.; Denton, G. T.; Bell, R. J.; Vernon, H. R.; Custer, L. R. (Anderson, Clayton & Co.)

United States Patent 4 104 413 (1978) [En]

Imitation pasta filata or Cheddar type 'cheese' may be produced from a homogeneous, gas-free blend of: an emulsion of water with a fat having a Wiley m.p. between 90° and 110°F, the fat representing 12-35% of the blend; 15-33% (preferably 25%) calcium caseinate; ≤5% ungelatinized flour; and 0.5-1.8% adipic, lactic, citric or malic acid (singly or in combination); the blend has a pH of 4.8-5.7 and includes appropriate colouring and flavouring materials. For imitation Cheddar-type cheese, ≤2% of emulsifying salts are normally included. EJM

32

Flow process for production of imitation cheese.

Rule, C. E.; Ilagan, J. B.; Miller, D. E. (SCM Corp.)

United States Patent 4 110 484 (1978) [En]

The process, applicable particularly to the manufacture of imitation Mozzarella cheese, covers products containing non-dairy fat and non-dairy protein, as well as those containing non-dairy fat and dairy protein. It involves the steps of preparing both a liquid blend (oil, water, emulsifier, acidulant, flavouring) and a dry blend (including at least one metal caseinate, NaCl and CaCl_2), continuously introducing the dry blend into an elongated, confined mixing zone of narrow diam., continuously introducing the liquid blend into the dry blend and subjecting the blends to continuous mixing while they are being conveyed through the zone, until a homogeneous mixture is obtained. The mixture is maintained at ≥100°F during mixing and imitation cheese product is withdrawn continuously from the confined mixing zone. EJM

33

Meat and dairy analogs from vegetable proteins.
[Lecture]

Welsh, T. L.

Journal of the American Oil Chemists' Society 56 (3) 404-406 (1979) [En] [Miles Lab. Inc., 7123 West 65th SE, Chicago, Illinois, USA]

The development of meat and dairy (margarine, whipped topping, non dairy coffee whiteners, cheese, ice

cream and other milk based desserts) analogues is briefly discussed. Design of meat analogues, including texture, flavour and nutritional properties, marketing of meat and dairy analogues and regulatory aspects which act as barriers to the development of vegetable protein foods are also discussed. [See FSTA (1979) 11 9G701.] SP

34

Imitation dairy product, production and application. [Lecture]

Gennip, A. H. M. van

Bulletin, International Dairy Federation No. 107, 92-98 (1978) [33 ref. En]

Various imitation dairy products and their definition are mentioned, and their properties are related to fat emulsification and stability of protein. The uses and applications of various types of imitation dairy products are briefly discussed and future prospects considered. [See FSTA (1979) 11 9P1543.] JMa

35

[Fried curd substitute.]

Fuji Oil Co. Ltd.

Japanese Examined Patent 5 346 895 (1978) [Ja]

Heat-gelled plant protein is mixed with water and oil and fried in oil to yield a product similar to fried soybean curd. IFT

36

Method for deodorizing soybean milk obtained from soybeans or defatted soybeans.

Eida, T.; Saito, Y.; Saito, T.; Yomoto, C.; Nakajima, Y. (Meiji Seika Co. Ltd.)

United States Patent 4 138 506 (1979) [En]

A process is described in which soy milk, containing sodium or potassium sulphite, is heated under pressure and contacted with activated carbon to remove odorous components. IFT

37

Effect of reconstitution on vitamins A and C content of whey-soy drink mix.

Dellamonica, E. S.; McDowell, P. E.; Campbell, R. B. *Journal of Dairy Science* 62 (3) 499-501 (1979) [6 ref. En] [E. Regional Res. Cent., Philadelphia, Pennsylvania 19118, USA]

The nutritive quality of a whey-soy drink mix was determined by measuring the retention of added vitamins A and C after the product was reconstituted in boiling water. In 1 study the mix was mixed in boiling water for up to 5 min and analysed for vitamin content after each 1 min heating interval. The reconstituted product lost approx. 50% of the original vitamin content after being boiled for 1 min. Little further decrease in vitamin content was observed after several additional min. of boiling until the 5-min interval when both vitamins dropped to about 35% of original amounts. In another study the mix was reconstituted by mixing the powder in boiling water for 20 s and then allowing the mix to stand at room temp. with no additional heating. This mixture decreased slightly in

vitamin content when analysed at 5-min intervals for up to 25 min. For max. vitamin retention whey-soy drink mix should be reconstituted by blending it in boiling water for about 0.5 min and then allowing the mixture to stand at room temp. before serving. AS

38

KIS shear load cells permit accurate blending in manufacture of 'St. Ivel Gold' a new dairy spread.

Anon.

World Galaxy No. 7, 101 (undated) [En]

Unigate Foods have created St. Ivel 'Gold' predominantly a dairy product with an authentic buttery taste. The technological break-through that makes this possible is the blending of ingredients in 4 ton tanks to an accuracy of 0.1% on Bofers BLH KIS shear force load cells used together with the BOEL system of modular digital electronic weighing equipment. The load cell has a weighing range from 100 kg to 200 tons. AGP

39

Technical problems and opportunities in using vegetable protein in dairy products. [Lecture]

Morr, C. V.

Journal of the American Oil Chemists' Society 56 (3) 383-385 (1979) [18 ref. En] [Dep. of Food Sci., Clemson Univ., Clemson, S. Carolina, USA]

This paper discusses needs for developing soy and vegetable protein isolates with improved flavour, colour and functionality for producing simulated dairy foods. It also considers alternative technologies for incorporating soy and vegetable proteins into the formulation so that they may function properly for forming stable solutions, emulsions, foams and gels that resemble those in their natural dairy food counterparts. [See FSTA (1979) 11 9G701.] SP

40

Vegetable protein application in yoghurt, coffee creamers and whip toppings. [Lecture]

Kolar, C. W.; Cho, I. C.; Watrous, W. L.

Journal of the American Oil Chemists' Society 56 (3) 389-391 (1979) [En] [Ralston Purina Co., St. Louis, Missouri, USA]

The use of soy proteins, in particular isolated soy proteins, in coffee creamers and whip toppings is discussed, with reference to their emulsifying properties. Also discussed is the production of yoghurt with isolated soy protein added as a replacement of the dried skim-milk which causes an increase in viscosity and gel strength to a greater amount than dried skim-milk and sodium caseinate added on an equivalent protein basis. [See FSTA (1979) 11 9G701.] SP

41

Technical and marketing developments in butter and dairy spreads. [Lecture]

Zillen, M.

Bulletin, International Dairy Federation No. 107, 129-132 (1978) [En] [SMR, Stockholm, Sweden]

Brief descriptions are given of Bregott and Lätt & Lagom. The reasons for their development are dealt with, and the effect of their introduction on the butter market is considered. Sales figures are given up to 1976 and compared with those for butter and margarine. [See FSTA (1979) 11 9P1543.] JMa

42

Method of and apparatus for, manufacturing coarse grained bean curd.

Abe, M. (Tokyokikaika Kogyo Co. Ltd.)

United States Patent 4 147 811 (1979) [En]

Process is described in which lumps of coagulated soybean milk are combined with fluid soybean milk to form a coagulated composition which is then heated in separate cups to effect bonding. Apparatus particularly adapted for carrying out the method is also described. IFT

43

[New products.] Neue Produkte.

Anon.

Deutsche Molkerei-Zeitung 100 (14) 533-534 (1979) [De]

Brief descriptions are given of 'Cremette' - a processed cheese product in cream and herb variants, made from fresh cheese and packaged in multipacks of 4, each portion weighing 37.5 g; a range of yoghurts (3.5% fat) with Chinese gooseberry, coconut, banana or pink grapefruit, the fruit content being 23%; and a dressing based on yoghurt and cultured cream and without oil, for salads, meat, fondue and grills - available in 4 variants. FL

44

[A versatile new material for the milk industry.] Ein neuer vielseitiger Rohstoff für die milchverarbeitende Industrie.

Lüpke, J.

Deutsche Milchwirtschaft 30 (21) 796 (1979) [De]

[Hafen-Mühlen-Werke GmbH, Goebenstrasse 14, 2800 Bremen, Federal Republic of Germany]

The new product 'creamed coconut' is 100% pure coconut product (6% protein, 62% fat, 10% carbohydrate, and 21% fibre, ash etc.) without any additives and is free of rough fibres. It is a high-aroma, guaranteed salmonella-free product which is supplied in solid blocks of good storage life; it is liquefied by heating to $> 28^{\circ}\text{C}$. Possible uses in the dairy industry include desserts, milk shakes, cream and semi-finished products (not specified). FL

45

[Detection of soybean protein in milk-soybean mixed products.]

Shiga, K.; Yoshitake, M.; Sato, T.; Someya, Y.

Bulletin of National Institute of Animal Industry

[*Chikusan Shikenjo Kenkyu Hokoku*] No. 33, 65-72 (1978) [6 ref. Ja, en]

3 possible detection methods were compared - amino acid analysis, gas chromatography of sugars, and polyacrylamide gel electrophoresis (with or without

sodium dodecyl sulphate) of the proteins. The 1st 2 methods were useful, but did not provide quantitative information. The gel electrophoretic methods were the most useful for detection and quantitation of levels of soybean protein in mixtures with milk or cheese, and could determine $\geq 5\%$ of soybean protein in milk-soybean mixtures. [From En summ.] JDr

46

Dairy spreads.

Mann, E. J.

Dairy Industries International 44 (7) 23, 25 (1979)

[23 ref. En] [Commonwealth Bureau of Dairy Sci. & Tech., Lane End House, Shinfield, Reading RG2 9BB, UK]

Recent developments in dairy spreads are reviewed, covering various types with or without flavourings, some enriched with protein and having considerably reduced energy content. FL

47

Rennet curd from milk plus soy protein mixtures.

Lee, Y. H.; Marshall, R. T.

Journal of Dairy Science 62 (7) 1051-1057 (1979)

[25 ref. En] [Dep. of Food Sci. & Nutr., Univ. of Missouri, Columbia, Missouri 65211, USA]

Rennet coagulated curds were made from mixtures of 80% raw milk and 20% soy protein solutions. Unfractionated soy protein solution and 11S soy protein-rich fraction were tested; rennet curd containing the latter had a higher yield of solids and harder texture. Effects of 0, 10, 20 or 40 mM added CaCl_2 on textures of rennet curd were measured by the firmness and moisture content of curds. Added 40 mM CaCl_2 decreased firmness of curd and increased moisture content. The soy proteins in 11S soy protein-rich fraction were co-coagulated with milk proteins by rennet from the milk/soy protein mixture. Soy proteins in the fraction added to milk precipitated in higher proportion than those of the skim-milk added to the control milk. The casein curd microstructures were loosened by soy protein, and this caused excessive losses of milk fat. Soy protein also increased the water holding capacity of rennet curd. Heat denaturation of soy proteins of the 11S soy protein-rich fraction increased the proportion of soy proteins incorporated in curd but also increased the loss of fat and the water holding capacity of the coagulum. AS

48

Direct acid sour dressing meets ethnic-dietary restraints.

Anon.

Food Product Development 12 (8) 72 (1978) [En]

Rising ingredient costs for cultured sour cream compounded by dietary, religious and ethnic constraints prohibiting its consumption, have given rise to the demand for imitation sour cream. Direct acid sour dressing containing soy isolate has greater stability than cultured sour cream, can be kept under refrigeration for ≤ 60 days and is more stable to heat and salt than its cultured counterpart. The formula and procedure for direct acid sour dressing production are presented. VJG

49

Process for the production of a vegetable-based sweetened condensed milk.

Kruseman, J.; Berkschy, P. Y.; Hidalgo, J. (Societe d'Assistance Technique pour Produits Nestle SA)
United States Patent 4 129 664 (1978) [En]

Soy protein, extracted from defatted soy flour, is subjected to partial enzymic hydrolysis by incubation with a mixture of proteolytic enzymes of *Streptomyces griseus*. The product obtained is freeze-dried or spray-dried and 8–18 parts (by wt.) mixed with 4–9 parts of fats, up to 14 parts of lactose, 40–55 parts of sucrose and 25–32 parts of water. The end product may be pasteurized and homogenized in order to improve texture and stability. EJM

50

[Frozen soybean curd.]

Nakata, M.

Japanese Examined Patent 5 401 782 (1979) [Ja]

Frozen soybean curd is swollen with water, combined with lemon juice, dehydrated, mixed with a flavorant which contains soy sauce, after which it is combined with flour paste, kneaded and dried under vacuum. IFT

51

Method for manufacturing rough textured soybean curd.

Ogasa, K.; Kuwahara, K.; Kato, R. (Morinaga Milk Industry Co. Ltd.)

United States Patent 4 140 811 (1979) [En]

A method for manufacturing a rough textured soybean curd having a long shelf life in which heat sterilized soybean juice is coagulated and the coagulum dehydrated to a moisture content of 78–90%. The dehydrated coagulum is then hermetically packaged and heated to pasteurize it. IFT

52

Legume-based imitation and blended milk products.

(In 'Proceedings of the First Indian Convention of Food Scientists and Technologists' [see FSTA (1979) 11 12A871]) [Lecture]

Chakraborty, P.; Sosulski, F. W.; Humbert, E. S. p. 84, No. 8.1 (1979) [En] [Dep. of Crop Sci., Univ. of Saskatchewan, Saskatoon, Canada S7N 0W0]

Protein isolates, prepared from various legume flours by alkali peptization, were mixed with water, hydrogenated coconut oil, lactose and Tween 80, heated, adjusted to pH 7.2 and homogenized. Although colour and viscosity of some of the products were similar to those of cows' milk, none approached cows' milk in odour or taste; the legume proteins that gave the most acceptable flavour to imitation milk were lima bean, mung bean and pea bean. An imitation milk prepared by blending an ethanol-washed protein concentrate of northern bean (*Phaseolus vulgaris*) with cows' milk (1:1) was given better flavour scores, but still considerably lower than those of the cows' milk control due to starchy flavour. CDP

53

Milk industry faces challenges.

Anon.

South African Food Review 6 (2) 70 (1979) [En]

Fresh milk products are being challenged by a number of milk and cream substitutes. These substitutes are often promoted using the terms 'non-dairy' and 'animal-fat free', which were designed to imply that the product had certain nutritional advantages over dairy products. A recent study by the National Research Institute for Nutritional Diseases has revealed that non-dairy creamers offer no nutritional advantages over their natural counterparts, and that they contain a higher proportion of saturated fatty acids than light cream. Use of milk blends only in infant feeds can cause essential fatty acid deficiency. These products should not be called milk substitutes as this misguides many consumers. The need for regulations requiring that products be correctly named and advertised is stressed. MC

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FAB 7

SYNTHETIC DAIRY PRODUCTS

SELECTED FROM VOLUME **12**

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of

Commonwealth Agricultural Bureaux, Farnham Royal, Bucks; Gesellschaft für Information und Dokumentation, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen.

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Some of the larger FABs have been divided into sections to facilitate use. FAB 47 also has a subject and author index provided.

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Coverage of the subject has been restricted to that of Food Science and Technology Abstracts, which covers over 1200 of the important food journals, patents from 20 countries and books published world-wide. Every effort is made to include all significant references, but editorial discretion is used on the many articles of borderline interest. If the reader particularly needs an exhaustive search of the subject, we will be pleased to provide any other references that we have available. We would, in any case, encourage readers to write or telephone us with any comments or queries that they may have.

H. BROOKES

EDITOR

1

Edible protein product.
Biotechnical Processes Ltd.

British Patent 1 544 812 (1979) [En]

Process is described for isolating protein from juice from vegetable processing and spinning it to form a product useful in the production of meat and cheese analogues. IFT

2

Soybean milk substitute.

Sakamoto, K.

British Patent 1 541 135 (1979) [En]

A process is described for the production of a mixture of dried soybean powder and unmilled rice which is easily dispersed in water to yield a synthetic milk product. IFT

3

Modified butter containing vegetable oils.

Ahmed, N. S.; Helal, F. R.; El-Nimr, A. A.

Milchwissenschaft 34 (4) 218-219 (1979) [5 ref. En, de]
[Dairy Res. Lab. Cent., Dokki, Cairo, Egypt]

Modified butter was made from buffaloes' cream by replacing 10, 15 or 20% of the fat with soybean or cottonseed oils. In sensory evaluation tests, butter containing up to 15% soybean oil had an acceptable flavour, compact body and good spreadability. Butters containing cottonseed oil were unacceptable with respect to body, texture and flavour. The use of 10-15% soybean oil in buttermaking is recommended on the grounds of flavour, good spreadability and lower costs. MEG

4

A milk-like beverage from neutralized direct-acid-set Cottage cheese whey.

Chen, F. H.; Bassette, R.; Marshall, J. T.

Journal of Food Protection 42 (4) 299-301 (1979)
[10 ref. En] [Dep. of Anim. Sci. & Ind., Agric. Exp. Sta., Kansas State Univ., Manhattan, Kansas 66506, USA]

An imitation milk was formulated by combining 4 parts of neutralized, direct-acid-set, Cottage cheese whey with 6 parts of whole milk, and fortifying with 0.5% dried skim-milk (DSM). Whey collected from a commercial plant was neutralized, clarified, blended with milk, fortified with DSM, pasteurized, homogenized, and packaged in 1/2-gal paper cartons in the Kansas State University (KSU) dairy processing plant. Calculated raw material costs were compared for 2.0% low fat milk, 3.25% fat milk, and for imitation milks with the same milk fat concn. The 2.0 and 3.25% imitation milk could be formulated with savings of 35 and 25 cents/gal resp. Coded samples of the product were compared with normal KSU whole milk by 112 persons. Of these, 45% identified the KSU milk samples, 35% thought the experimental product was the KSU milk, and 20% could tell no difference. The milk sample was preferred for flavour by 42% of consumers, 32% had no preference, and 26% preferred the imitation milk. The imitation milk, containing 11.5% TS and 2.4% protein, was 0.5% lower in TS and 1.0% lower in protein than KSU whole milk. AS

5

[Luminescent control of whole milk substitutes.]

Kozlova, G. G.; Sagalovich, E. E.; Mizyakina, A. M.
Izvestiya Vysshikh Uchebnykh Zavedenii, Pishchevaya Tekhnologiya No. 1, 62-64 (1979) [7 ref. Ru] [Nauchno-issled. Inst. Prikladnykh Fizicheskikh Problem, USSR]

Luminescent methods of checking the quality of filled milk and of fat and protein concentrates, which constitute a base for calf feed, are proposed. The method is based on measuring intensity of secondary luminescence of pigmented fat globules; the pigment is a solution of phosphin 3R, with an addition of NaOH solution. The luminescent method is simple, fast and sufficiently accurate; detrimental chemicals are not used in the analysis. STI

6

Feasibility of packaging artificial and natural cheese in selected pouches.

Ionson, S. E.; Chandan, R. C.; Lockhart, H. E.

Journal of Dairy Science 62 (suppl. 1) 47 (1979) [En]
[Michigan State Univ., East Lansing, Michigan 48824, USA]

Various materials were tested on 1-lb. cuts of cheese held at 4°C for up to 35 wk. Barrier-coated polyamide-polyethylene was the best material. All samples in polyethylene developed mould in 5 wk, and natural Cheddar and artificial Mozzarella showed mould in crease areas in barrier-coated polypropylene-polyethylene and polyamide-polyolefin. In oriented polyester-polyolefin flex cracking followed by mould growth occurred after 6-8 wk in all samples, and in some samples surface colour was lost by 22 wk. JMa

7

[Use and nutritive value of coffee milk, etc.]

Anon.

Zuivelzicht 71 (43) 942 (1979) [Nl]

The habit of adding evaporated 'coffee milk' instead of ordinary milk to coffee developed in the Netherlands shortly after the 2nd World War. 3 types of coffee milk are produced: full-fat ($\geq 7.8\%$ fat); semi-fat (4%); and low-fat (0.2%). They are marketed in glass bottles, cans, plastics containers or even tubes. The nutritive value of coffee milk is compared with that of the alternative products coffee cream (20%-fat, sterilized for almost unlimited storage), dried whole milk, dried skim milk, and coffee whiteners. Most coffee whiteners contain virtually no milk components: the Dutch national dairy product testing centre has found that they contain approx. 35% hardened coconut fat, 53% maltodextrin, 6% sodium and potassium caseinate, and 1.5% potassium or sodium phosphate (dibasic), together with emulsifiers and stabilizers. The Dutch dairy industry, however, now produces coffee whiteners with increased levels of milk components. ADL

8

Tamucurd - a high-protein ingredient.

Kajs, T. M.; Lawhon, J. T.; Rhee, K. S.

Food Technology 33 (7) 82-86 (1979) [23 ref. En]
[Procter & Gamble Co., Sharon Woods Tech. Cent., 11520 Reed Highway, Cincinnati, Ohio 45241, USA]

Production, composition, nutritional quality, stability and potential applications of a vegetable curd made from glandless cottonseed are described. Full-fat glandless cottonseed flour is extracted with hot water (pH 8, 1:4–1:9 flour:water by wt.) and agitated for 15 min. The slurry is then, with or without intermediate filtering, heated to boiling and a coagulation aid (CaSO_4 , NaCl etc.) is added. Coagulum is separated from whey by centrifugation. The product obtained can be incorporated directly into foods or spray-dried. The wet product ('Tamucurd') has the following proximate composition: moisture 66%, protein 14.2%, oil 12%, crude fibre 1%, ash 5.0%. Curd represents 60–80% of original kernel solids. Total gossypol in all products was <0.045%. Amino acid composition of cottonseed kernels and Tamucurd is tabulated. Product stability was studied by thiobarbituric acid (TBA) number detn. on storage for 12 wk at 7–35°C. TBA values increased from 0.66 (initially) to 1.2–1.7 at 4 wk then decreased to 0.75–0.86 at 12 wk. Reasons for high stability to rancidity discussed include the presence of flavonoids. Microbial quality was studied during storage. Plate counts decreased with storage (0–12 wk, 7–35°C) as did yeasts and moulds and coliforms. Faecal coliforms, *Escherichia coli* and *Staphylococcus aureus* remained at <3.0/g, and no salmonellae were found. Potential applications include use as a cream cheese substitute, such as in cake and fudge and as a meat substitute in sausage-type products. DIH

9

Shelf-stable mix for a spreadable butter-substitute. Hallstrom, C. H.; Teuba, A. R.; Glass, B. E.; Luck, J. V.; Daravingas, G. V. (General Mills Inc.)

United States Patent 4 160 850 (1979) [En]

A packaged, shelf-stable mix suitable for consumer preparation of a spreadable butter-substitute product upon the addition of water or water and an oil is described. The product has an oil content of 20–80% by wt. and a water content of 10–80% by wt. IFT

10

Butter and cream. [Review]

Anon.

Milk Industry 81 (10) 29–31 (1979) [En]

Research on butter and cream being carried out at the National Institute for Research in Dairying and the Hannah Research Institute is summarized. Work on control of moisture and salt content in continuous buttermaking, and the control of spreadability of butter and margarine is described, and vegetable oil-butter products are mentioned. A survey on cream quality has been carried out, to identify factors affecting the shelf-life of cream, and to define the relation between raw milk quality and product quality. Emulsion stability and feathering of UHT coffee cream have also been studied, including the destabilizing effect of higher contents of Ca and casein in the fat phase. JMa

11

Preparation of a cheese food.

Kudo, S.; Ishino, K.; Akaba, K. (Asahimatsu Koridofu Co. Ltd.)

United States Patent 4 144 358 (1979) [En]

In a typical example, a cheese-like food based on a mixture of heat-treated soybeans and unheated natural cheese was produced as follows: (i) soaked whole grains of soybean were heated for 5 min in hot water, cooled, the skins removed and crushed; (ii) a mixture consisting of 40 parts of the crushed soybeans and 60 parts of natural cheese, 15 parts hardened oil, 2.5 parts melting salts and 0.8 part kitchen salt was agitated for 20 min at 35°C; (iii) the resulting product was moulded and subjected to ageing at 5°C for 2 months after which it was agitated for 20 min at 80°C and packaged in film bags under sterile conditions. The product compared favourably with commercial processed cheese. EJM

12

[Plastics containers for UHT products: 'bottle-pack-aseptic-system'.] Kunststoffbehälter für UHT-Produkte: 'bottle-pack-aseptic-system'.

Anon.

Molkereitechnik 43 73–75 (1979) [De]

The containers (polyethylene) are made by a blow-moulding process and are filled immediately whilst still sterile. The packaging plant can be supplied direct from the UHT installation or via a sterile tank; for capacities of up to 1000 l/h the company supplies their own indirect UHT sterilizer with an integrated cleaning system. The smallest packages are tubes with 7.5 or 15 ml coffee cream. Further package sizes are 200–250 ml for school milk, 0.5 and 1.0 l bottles, and finally 5 and 10 l containers (for catering establishments, schools, bakeries, confectionery shops). FL

13

[Artificial food. I. Development of a new trend in food production – causes and advantages.] Künstliche Lebensmittel. I. Entwicklung einer neuen Richtung der Lebensmittelproduktion – Gründe und Vorteile.

Tolstoguzov, V. B.

Nahrung 23 (6) 649–654 (1979) [3 ref. De, en, ru] [Inst. for Primary Organic Compounds, Moscow, USSR]

Aspects discussed include: the relative inefficiency of conversion of vegetable protein to animal protein by conventional agricultural techniques; the potential for more direct use of vegetable (and, possibly, microbial) protein as food, by production of synthetic foods; manufacture of food analogues (e.g. synthetic caviar, ham, roast potatoes) and food extenders (e.g. for use with comminuted meat); the potential for optimization of the structure, composition and characteristics of foods; and for preparation of foods for special dietetic purposes; and improvement of food supplies in regions (e.g. mountainous areas, deserts) where production, storage and distribution of traditional foods are difficult. IN

14

Protein, oil and gossypol contents of a vegetable curd made from okra seeds.

Martin, F. W.; Telek, L.; Ruberte, R.; Santiago, A. G. *Journal of Food Science* 44 (5) 1517–1519, 1529 (1979) [6 ref. En] [Mayaguez Inst. of Tropical Agric., USDA S. Reg., SEA-AR, Mayaguez, Puerto Rico 00708]

5 grinding/extraction techniques and 6 precipitation/recovery methods, all suitable for low-technology small-scale production, were compared for production of a curd from okra seeds. The most efficient of the extraction methods studied was by soaking seeds 20 h in 5 vol. of water, then grinding 1 min in 1 vol. of water in a household blender. The resulting 'milk' was filtered and heated to 80°C prior to addition of 1 of 6 precipitating agents, viz.: $MgSO_4$, $MgCl_2$, $NaCl$, $CaCl_2$, vinegar or fresh lime juice. Curd was then separated from whey by filtration. Protein contents were, of okra seeds 26.0% (dry basis), of extracted seed residue 9.64% and of curds 35.8–46.7%. Corresponding values for oil and gossypol contents were 18.1% and 0.007%, not reported and 0.001% and 44.2–51.9% and 0.012–0.022%, resp. Lime juice gave curds that were the easiest to filter, the most pleasant tasting and with the highest protein content. Effects on varying concn. of $MgSO_4$ or vinegar on curd composition, and % recovery from milk of protein and oil are tabulated. All vinegar concn. studied (2.5–40 ml/200 g milk) recovered more protein than did any $MgSO_4$ concn. (1.25–20 g/200 g), 87–99% vs. 67–85%, resp. Corresponding oil recoveries in curds were 54–62% vs. 33–77%. The techniques used can also be adapted to large-scale production. Gossypol contents of curd are below FAO recommended tolerances, and can probably be reduced by selection of low-gossypol var. DIH

15

Utilization of peanut protein and oil in cheese analogs.

Chen, S. L.; Wan, P. J.; Lusas, E. W.; Rhee, K.-C. *Food Technology* 33 (7) 88–93 (1979) [23 ref. En] [Food Protein R&D Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Non-ripened imitation cheeses were produced from blends of calcium/sodium caseinate and peanut protein isolate, together with emulsifying salts, water and butterfat, hydrogenated vegetable oil or peanut oil. Effects of levels of different ingredients in the recipe, of different fats and of different emulsifying salts on textural and melting properties are tabulated for the cheese analogues, and these properties are compared with those of commercial Cheddar, Mozzarella and cream cheeses and with processed cheese spread. Variations in peanut protein:caseinate ratio produced the most significant effects on textural properties; all-caseinate analogues gave unacceptable strong rubbery cheeses, 50% replacement of caseinate by peanut protein gave analogues comparable to Mozzarella cheeses, and 85% substitution of peanut protein gave a product similar to cream cheese. Analogue cheeses containing peanut oil or hydrogenated vegetable oil were softer and tougher, resp. than those containing butterfat, but were all considered acceptable. DIH

16

Dairy analogs – a challenge or menace to dairy industry.

Patil, G. R.; Gupta, S. K.

Indian Dairyman 31 (1) 51–53 (1979) [En] [Dairy Tech. Div., Nat. Dairy Res. Inst., Karnal 132 001, Haryana, India]

The development of imitation dairy products, the need for diversifying the present day dairy products, and the import of analogues on the traditional dairy industry in India are covered. CFTRI

17

Isolation and properties of vegetable casein from coconut whole skim milk.

Birose, D. M.; Nuevo, C. R.; Santos, M. P.

Philippine Journal of Coconut Studies 4 (2) 31–34 (1979) [En] [Nat. Inst. of Sci. & Tech., Pedro Gil, Metro Manila, Philippines]

The coconut protein corresponding to globulin in Osborne's classification has been resolved into 2 portions: vegetable casein, constituting 79.71% of the total coconut protein present in coconut fat-free 'milk'; and globulin, making up a minor portion. Precipitated with HCl at high pH vegetable casein has a pale straw colour like dairy casein. On storage, the dairy casein becomes stronger yellow, while the former tends to turn brown or darker. The difference in colour is brought about by oxidation of different phospholipids present in the milks. Both the heat-coagulated and the cold-precipitated oil-free vegetable casein consist of white particles. The coagulation temp. of vegetable casein (80°C) is much below the denaturation temp. of proteins. UPLB

18

Fermentation of soy milk by lactic acid bacteria.

A review. [Review]

Mital, B. K.; Steinkraus, K. H.

Journal of Food Protection 42 (11) 895–899 (1979) [56 ref. En] [Dep. of Food Sci. & Tech., Univ. of Agric. & Tech., Pantnagar, District, Nainital, India]

Fermentation of soy milk with lactic acid bacteria to give cheese or yoghurt-like products acceptable to Western tastes (and with reduced flatulence potential) is reviewed. Organisms used must be able to ferment sucrose, raffinose or stachyose unless the soy milk is supplemented. Use of *Streptococcus thermophilus*, *S. thermophilus* + *Lactobacillus bulgaricus*, *S. faecalis*, *L. acidophilus* and *L. plantarum* is discussed, along with other lactic acid bacteria and combination cultures. Problems of acid production in soy milk, and effects of soy milk production on subsequent fermentation and flavour are described. More research is needed on microbial utilization of soybean oligosaccharides, and on proteolytic and lipolytic activities of lactic cultures suitable for production of cheese-like products. DIH

19

[Soybean cheese product.]

Asahimatsu Koridofu Co. Ltd.

Japanese Examined Patent 5 422 498 (1979) [Ja]

Lactobacillus is cultured in soy milk, followed by separation of the whey, addition of protease to the curd and compression to remove water. IFT

20

Use of calcium salts for soybean curd preparation.

Lu, J. Y.; Carter, E.; Chung, R. A.

Journal of Food Science 45 (1) 32–34 (1980) [En] [Food

Sci. & Nutr. Dep., Tuskegee Inst., Alabama 36088, USA]

A delicate step in preparation of soybean curd is addition of a salt, commonly CaSO_4 , to precipitate soy protein. In this study, the use of other Ca salts (chloride, lactate, acetate, carbonate, phosphate, hydroxide, gluconate) and 2 noncalcium compounds (glucono- δ -lactone and acetic acid) was investigated. Soy protein was precipitated by calcium chloride, calcium lactate, calcium acetate, calcium gluconate, glucono- δ -lactone, and acetic acid. The amount of chemical added to precipitate soy protein varied depending upon the type of compound used, but in all cases, soy protein was precipitated when the pH of soy milk was at or near 6.0. Calcium acetate and calcium chloride appeared to be good precipitants for soybean curd preparation. Quality and sensory score of the soybean curd prepared from these salts were satisfactory; preparation requires less skill than with CaSO_4 because of solubility; besides, the amount of the salt needed to precipitate soy protein was less than one-half that of CaSO_4 . IFT

21

[Fried bean curd.]

Fuji Oil Co. Ltd.

Japanese Examined Patent 5 424 453 (1979) [Ja]

A mixture of soybean curd protein containing no alkaline earth metal salt is allowed to soak in water, after which it is fried in oil. IFT

22

Marketing an expanded product line: the 'SUGAM' project.

Aneja, R. P.; Mathew, P. V.; Vyas, M. N.; Malvia, H. B. *Indian Dairyman* 31 (1) 19-23 (1979) [En] [Nat. Dairy Dev. Board, Anand-388 001, Gujarat, India]

As low-income groups in India use milk only in tea, the Baroda Dairy introduced in tea whitener (or 'Tea Enricher') to the market with 2% fat and 8.5% SNF, at a cost of Rs1.00/l (vs. Rs2.00/l for milk with 3% fat and 9% SNF). To offset the loss on the Tea Enricher, the dairy also launched a luxury product, namely shrikhand, under the brand name Sugam. This soon became very popular with the middle and upper income groups. Sugam has substantially expanded the market for shrikhand in Baroda. Production of long-life milk is being considered. The composition of the tea whitener, a flow sheet of the process, and sales of the tea whitener and shrikhand during 1976-1978 are given. CFTRI

23

Development of village scale beverage, coco-soya milk.

Varangoon, P.

Food 9 (3) 62-71 (1977) [3 ref. En] [Applied Sci. Res. Corp. of Thailand, Bangkok, Thailand]

2 formulae for coco-soya milk were prepared from coconut milk and soybeans. The product can be made at domestic or community level by blending dehulled boiled beans and coconut milk or soybean extract (prepared by grinding soaked beans with 10 parts of boiling water and filtering) and coconut milk. Both formulae provide about 6 g protein as well as 160 and

132 cal resp. in every 200 g serving. [From En summ.] RM

24

[Technology of low-fat products.]

Zuczek, J.; Kazimierzczak, W.

Przegląd Mleczarski 27 (3) 9-10 (1978) [2 ref. Pl] [Inst. Przemysłu Mleczarskiego, Warsaw, Poland]

Results of tests to develop suitable techniques in Poland for production of (i) butter product with reduced fat content, (ii) low-fat sauces and salads based on yoghurt, and (iii) spreads are outlined. The salient points for (i) were that the product with $\leq 30\%$ moisture may be produced in metal churns by prescribed procedures, provided the churning and working temp. are raised by 2-3°C; that a product with 30-50% moisture may be made in a churn using cream with 40-45% fat and 6% dried skim milk added, and emulsifying the buttermilk at 27°C, the dried skim milk being preferably partly de-lactosed to avoid sweet after-taste in butter; and that achievement of structure and consistency similar to those of normal butter would require construction of plasticizing equipment. For (ii), milk with 2% fat with 4% dried skim milk added, pasteurized at 95°C and fermented with a yoghurt starter at 43-45°C to a pH of 4.0-4.2 is recommended as a basis; for sauces, 0.3-0.4% Frimulsion stabilizer is added with sugar and salt, followed by flavourings (ketchup, tomato paste, Rokpol cheese, vegetables, dill), the mixture is pasteurized at 75-78°C and packaged hot in 'twist'-type jars heated after closure for 2 min at 85°C, storage life being 2-3 wk at room temp., and 4-6 wk at 4-5°C; for salads a similar procedure is recommended, but gelatin is used as stabilizer and comminuted sausage, smoked fish or vegetable pickles are included, storage life being 4 wk at room temp. and 6 wk at 5-7°C. Composition of sauces and salads is given, resp., DM 15-20 and 20%, fat 1-4 and 4-6%, and protein 3-6 and 7-9%. For (iii), 40% fat cream with 4% dried skim milk added is recommended as a basis; the cream is cultured to pH 4.0-4.3 and mixed 1:1 with hard cheese or twarog, Frimulsion stabilizer being added at 0.4%, and 1-2% citrate (for cheese) or 3% phosphate (for twarog) being used as emulsifiers; the mass is pasteurized under constant stirring (1000 rev/min) at 78-80°C for 2 min, and flavouring substances (such as dill, paprika, tarragon, marjoram) are added; and packaging is as for (ii), storage life being 4 and 2 wk, resp., for cheese and twarog pastes at room temp., and 6 and 4 wk, resp., at 5-8°C. Compositions are, resp., moisture 45-52 and 66-71%, fat 22-27 and 12-13%, and protein 14-15 and 12-13%. SKK

25

Method for processing soy protein and composition of matter.

Davidson, R. M.; Sand, R. E.; Johnson, R. E. (Anderson, Clayton & Co.)

United States Patent 4 172 828 (1979) [En]

Defatted soybean flakes are mixed with water and heated to 55-70°C to extract the solubles. The extract liquor is cooled for > 1-3 h to 5-10°C. The resultant curd is separated from the whey, and is preserved by freeze- or spray-drying. The whey may be processed by

a series of steps generally involving precipitation of additional curd, washing or redissolution of the curd, adjustment of pH, and drying. 4 distinct protein fractions result, each having differing and unique physical and/or functional properties. Applications include production of imitation cheese, gelling agents and egg white substitute. HBr

26

Particle size distribution in citrus flavored soybean and peanut milk beverages.

Schmidt, R. H.; Surak, J. G.; Hausknecht, D. R.; Haile, D. G.

Proceedings of the Florida State Horticultural Society 91, 153-156 (1978) [18 ref. En] [Food Sci. & Human Nutr. Dep., Univ. of Florida, Gainesville, Florida 32611, USA]

Soybean and peanut milk beverage systems were prepared from full fat soybeans and 50% defatted peanuts. Mandarin orange flavour syrup was added at a 15% level and the products were homogenized in a 2-stage homogenizer. Similarly flavoured and processed whole cow's milk systems were used as controls. The beverages were compared for viscosity, particle size distribution and sensory chalkiness ratings. Highest viscosity was observed in the soy milk systems, while lowest viscosity was observed in control milks. Oilseed milk viscosity was generally reduced by sieving through 100, 150 and 250 mesh screens. Sieving apparently removed large particles present in the oilseed milks. The presence of larger particles was most apparent in unsieved and sieved (100 and 150 mesh) peanut milks compared to soybean milk or controls. Similar particle size distributions however were observed for 250 mesh sieved peanut and soybean milks. While sensory ratings increased with sieving in both oilseed milk systems, the final sieved products were rated as slightly chalky. An association of the chalky texture problem associated with oilseed milks to small number of relative large particles is indicated. AS

27

[Technological modifications of butter in relation to dietetic criteria.]

Forman, L.

Prumysl Potravin 30 (4) 213-215 (1979) [Cs]

[Vyzkumny Ustav Mlekarensky, Prague, Czechoslovakia]

A survey is given of various types of butters of reduced fat content and butter-based spreads. They include 'Frische Rahm Butter' (German Democratic Republic) with 48% fat and 51.6% TS, low-calorie butter with 56% fat and 60.2% TS, and a special butter spread with 35% fat and 46% TS. The last is made in Czechoslovakia by a method involving the use of a mixture of 40% fat cream with a hydrocolloid and 6% dried skim milk which is homogenized to partially destabilize the cream and modify its emulsion characteristics, incubated with dairy cultures, subjected to thermization, and re-homogenized to produce a stable fine consistency. The product, which was very well accepted in Czechoslovakia, is readily spreadable and has a storage life of >30 days. FL

28

Artificial cream.

Unilever NV

UK Patent Application 2 014 426A (1979) [En]

An artificial cream composition is described which contains lecithin and ionic lipophilic and polyoxyalkylene condensate nonionic hydrophilic emulsifiers. IFT

29

[Manufacture of instant soy milk powder for infants.]

Chen, W. L.; Li, C. F.; Wu, S.; Li, C. H.; Feng, L. H.

Technical Report, Food Industry Research &

Development Institute No. 140 (1979) [4 ref. Ch, en]

[Food Ind. Res. & Development Inst., Hsinchu, Taiwan]

The soy milk powder was prepared by the following procedure: soaking, grinding, heating, filtration, isoelectric separation, washing, neutralization, homogenization, enrichment, spray-drying and agglomeration. Up to 99% of the oligosaccharides causing perianal skin rash in infants could be removed by isoelectric separation and washing. Agglomeration improved the dispersibility but decreased the solubility of the powder. No minerals were added because of their adverse effects on solubility, flavour and colour of the final product. FIRDI

30

[Whipped cream.]

Fuji Oil Co. Ltd.

Japanese Examined Patent 5 429 581 (1979) [Ja]

A process is described in which whippable cream compositions are made by heat sterilization of milk compositions containing an oil, lecithin, a fatty acid ester of sucrose, and a fatty acid monoester of glycerol. IFT

31

Some observation on the composition and labelling of coffee whiteners and other simulated dairy products.

Koeppen, B. H.

Food Industries of South Africa March, 4-5 (1979)

[En] [Univ. of Stellenbosch, Stellenbosch, South Africa]

Analyses of a typical coffee whitener and fat-standardized cows' milk are presented and compared; it is the author's contention that simulated dairy products are nutritionally inferior to the genuine articles which they seek to replace. The fat content of the simulated dairy products is particularly discussed; analyses indicate that at normal usage levels the milk replacers contribute more fat, of a greater degree of saturation, to the diet than would cows' milk. JRR

32

The effect of coagulants on protein content and amino acid composition of soybean-cheese whey curd.

Yao, M.-L.; Peng, A. C.

Research Circular. Ohio Agricultural Research and

Development Center No. 250, 48-51 (1979) [11 ref. En]

[Ohio State Univ., 190 North Oval Drive, Columbus,

Ohio 43210, USA]

Soybean milk, prepared from an aqueous slurry of ground beans (final meal: water ratio 1:10 w/w), was boiled for ≥ 15 min to destroy any trypsin inhibitor present. A sodium cheese whey protein concentrate was dispersed in hot water at a ratio of 1:10 w/v. The soybean milk and cheese whey preparation were then mixed in ratios ranging from 100:0 to 0:100. Curd was prepared from these mixtures by adding coagulants (selected after preliminary evaluation of several coagulants for their suitability for curd production). The coagulants used were (w/v): (i) 0.6% glucono-delta-lactone (GDL); (ii) 0.6% GDL + 0.05% CaSO_4 ; and (iii) 0.6% GDL + 0.17% MgCl_2 . The curd formed was allowed to stand for 30 min, then the serum was separated by straining through cheese cloth and the curd subjected to pressure (0.036 lb/in²) for 15 min. The pressed curd was then examined for aroma (by a taste panel), textural properties (by a penetrometer), pH, moisture content, yield, protein content and amino acid composition. A soybean curd prepared with 0.25% CaSO_4 served as a control. Results indicated that the soybean milk/cheese whey curds studied have acceptable aroma and texture, a good yield, acceptable moisture and protein contents and a promising amino acid composition. It is suggested that the curds could provide an inexpensive source of protein and could also form the basis of new food products such as non-dairy yoghurt and pie fillings. The product is covered by US Patent 4 105 803 of 8 Aug., 1978 [see FSTA (1979) 11 8G645]. JA

33

The coagulation of soybean milk by the action of heat and papain.

Scharf, S. S.

Dissertation Abstracts International, B 40 (6) 2591-2592: Order no. 79-26958, 189pp. (1979) [En][Cornell Univ., Ithaca, New York 14850, USA]

Native soy proteins (SP) dissolved in an aqueous extract of defatted soy flour or of whole soybeans formed an opaque white gel when treated with activated crystalline mercuripapain or unactivated crude papain during heating from room temp. to $>85^\circ\text{C}$ in the pH range 6.0-8.5. If the SP had been denatured by heat (90-100°C), subsequent treatment with the papain preparations at 20-60°C and pH 6.0-8.5 resulted in the formation of a tan coloured, plastein-like gel. Studies of the crude papain indicated that its gel-forming ability is related to the milk-clotting factor. Native SP at an ionic strength of 0.1 did not gel when heated with crude papain at $<85^\circ\text{C}$ but a precipitate was formed. At an ionic strength of <0.05 , gelation was prevented and no precipitate was formed. Increasing the ionic strength of the SP solution to 0.1-0.25 resulted in the formation of different amounts and types of precipitate on treatment with crude papain at 40°C. Further studies examined the susceptibility of 2 SP (7S and 11S globulins) to proteolysis by papain; results indicated that the 7S globulin is much more susceptible than 11S. JA

34

Dairy blends.

Harvey, D. J.; Harvey, M. M. (Dairy Developments Ltd.) *UK Patent Application* 2 021 140A (1979) [En]

A method for the production of a dairy blend comprises softening butter by heating in a water bath at 30°C, adding a solution of salt, gelatin and 'Gelcol 120C' in boiling water cooled to 40-45°C, leaving the product to stand for 1 h, incorporating a vegetable oil, e.g. rapeseed oil, at an optimum level of 35-37% by wt. of the butter with continuous mixing, and cooling at refrigerator temp. The product has improved spreadability in comparison to butter. FL

35

Process for adjusting the ash balance of cow's milk and other milks and simultaneously removing minerals from the same.

Tancya, S.; Itoh, K.; Hiraoka, Y.; Motomura, H.; Matsunaga, Y.; Kawanishi, G.; Nakamura, T.; Hayashi, S. (Snow Brand Milk Products Co. Ltd.; Tokuyama Soda Co. Ltd.)

United States Patent 4 146 456 (1979) [En]

Cows' milk and/or its analogues are demineralized with ion-exchange membrane electrodialysis apparatus. The method comprises demineralizing cows' milk or its analogues in a 1st stage consisting of >1 electrodialysis stacks at a demineralization rate of $<50\%$, then further demineralizing in a 2nd stage consisting of >1 electrodialysis stacks at a demineralization rate of $>60\%$, and transferring the demineralized milk to concentration compartments consisting of >1 electrodialysis stacks of the 1st stage. In a typical example, the mineral contents (mg/100 ml) of skim milk before and after treatment resp. were as follows: Na, 73.1 and 12.6; K, 148 and 113; Ca, 105 and 66.7; Mg, 12.3 and 6.42; P, 83.3 and 40.0; and Cl, 102 and 80.2. The process may be applied to cows' milk and whey, as well as the goats' milk and soybean milk. EJM

36

Process of manufacture of a butter spread.

Forman, L.; Pech, Z.; Vondruska, V. (Czechoslovakia, Mlekarensky Prumysl, Generalni Reditelstvi)

United States Patent 4 177 293 (1979) [En]

A low-fat butter spread containing 19-48% fat and 4.6-7.7% protein, is prepared by forming a mixture of sweet cream with dried milk or milk protein product (e.g. coprecipitates), pasteurizing and cooling it, inoculating the mixture with a lactic culture, subjecting it to a first homogenization at a temp. of 20-30°C and pressure of 10-25 MPa, ripening the mixture to an acidity of 68-112°D, adding a stabilizer (e.g. modified starch, gelatin or pectin) at a rate of 0.5-5.0% (by wt.), subjecting it to a second homogenization at a temp. of 65-80°C and pressure of 5 MPa, and cooling to between 3° and 10°C. Flavouring substances may be added and up to 50% of the cream may be replaced by vegetable fat. EJM

37

[Artificial food. II. Possibilities of production of some artificial foods.] Künstliche Lebensmittel.

II. Herstellungsmöglichkeiten einiger künstlicher Lebensmittel.

Tolstoguzov, V. B.

Nahrung 23 (8) 821-827 (1979) [15 ref. De, en, ru] [Inst. für elementorganische Verbindungen, Moscow, USSR]

General aspects of the manufacture of artificial foods are discussed, with special reference to products based on protein gels or protein/polysaccharide gels.

Manufacture of synthetic caviar, dairy products, rice, pasta, potato products and meat products is briefly described. Possibilities of preparation of anisotropically structured meat products without spinning of protein fibres are considered. [See FSTA (1980) 12 3G168 for part I.] IN

38

[Milk-like flavour.]

Soda Sangyo Co. Ltd.

Japanese Examined Patent 5 500 031 (1980) [Ja]

A substance having a milk-like flavour is produced by heating C9-C12 alkyl-hydroxy acids under pressure. IFT

39

Milk and milk product substitutes to combat malnutrition.

Patil, G. R.; Gupta, S. K.

Indian Farming 28 (1) 34-36 (1978) [En] [Nat. Dairy Res. Inst., Karnal, Haryana, India]

Substitutes for dairy products and general principles for their manufacture are outlined, mainly using vegetable oil and protein to replace milk fat and casein. Examples given of the use of such products include 'Miltone', a milk substitute developed at the National Dairy Research Institute; a product derived from soybeans at the GBPU of Agriculture and Technology, Pantnagar; and infant food and artificial ice cream derived from groundnut isolates developed at the CFTRI, Mysore. Research is continuing on improving the protein quality of substitutes. BWH

40

[Method for producing a dry powdered food or fodder product.]

Andersson, O. W. (AB Milkfood)

Swedish Patent Application 403 035 (1978) [Sv]

A method is described for producing a dry, powdered food or fodder product, e.g. mashed potato flakes, gruel, soup, sauce, pudding, or cream substitute powders, the product being ready for use after mixing with liquid. In the method, a liquid component and a completely or partially dry, solid component are brought together, and dried to form the desired end product. The liquid component consists of fat, a conc. liquid containing protein with a solid content of up to 50%, and an emulsifier; they are mixed and homogenized to form an emulsion. The emulsion, optionally after addition of further material containing protein or carbohydrate is

finely divided, added to the solid component and dried at a temp. of 50-200°C. The emulsified fat in the emulsion is deposited as small globules on the solid powdered component and is surrounded by a dried layer of the continuous phase of the protein-containing emulsion. The dry product is then cooled. W&Co

41

Cheese substitutes: threat or opportunity?

Vakaleris, D. G.

Dairy Field 162 (11) 941-941, 95 (1979) [7 ref. En]

Various aspects of cheese substitutes, such as nutritional value, types (Mozzarella, Process American, Provolone, Parmesan, processed cheese food and cheese spread substitutes) and users (pizza manufacturers, schools, institutions and the 'fast' food industry) are discussed. It is estimated that in 1977, the sale vol. of cheese substitutes in the USA was about 70 million lb, representing <2% of the total cheese sales. FL

42

Nutrition and color added to cheese substitute with same ingredient.

Johnson, J. R.; Saddler, W.; Andres, C.

Food Processing 40 (10) 74-75 (1979) [En] [Fisher Cheese Co., PO Box 409, Wapakoneta, Ohio 45895, USA]

The use of carotenoid compounds to enhance the colour of processed cheese and cheese substitutes is described. A special blend, containing β -carotene and β -apo-8-carotenol with DL- α -tocopherol as stabilizer and fractionated coconut oil triglycerides, has been developed for processed cheese uses. JRR

43

Intermediate-moisture ready-to-use, frozen non dairy creamer.

Kahn, M. L.; Eapen, K. E. (Rich Products Corp.)

United States Patent 4 199 604 (1980) [En]

Microbiologically stable foods are described which remain soft and ready for use at freezer and refrigerator temp. for an extended period of time. They are prepared by controlling their sugar fat content. Quinine salts are used to counteract the sweetener of the added sugar. The non-dairy creamer comprises: water 40%, dextrose 40%, fat and minor amounts of salts, emulsifiers, and a protein concentrate — 18%, and 3-20 p.p.m. quinine salt. The product is non-crystalline at freezer temp. and is usable within min from the freezer. It is microbiologically stable at room temp. for an extended period. [See following abstr.] SP

44

Intermediate-moisture frozen non-dairy coffee creamer.

Kahn, M. L.; Eapen, K. E. (Rich Products Corp.)

United States Patent 4 199 605 (1980) [En]

A non dairy creamer [see preceding abstr.] is described comprising water 40%, dextrose 40%, soybean 16%, coconut oil 2%, and minor amounts of salt, emulsifier, stabilizer and flavouring. The product is

semi-soft at freezer temp. and is microbiologically stable for storage at room temp. for an extended period. SP

45

Low calorie containing imitation dairy products.
 Gilmore, C.; Miller, D. E.; Zielinski, R. J. (SCM Corp.)
United States Patent 4 199 608 (1980) [En]

Low calorie imitation dairy products are produced by elimination of the conventional triglyceride fat and substituting an edible partial glycerol ester emulsifier containing diglyceride, 38–48% of ester emulsifier wt. Ratio of diglyceride to monoglyceride is 5:1 to 1.5:1. A stabilizing gum and lipid are also added to provide properties of conventional dairy products. SP

46

[New food product.]
 Maillols, M.

French Patent Application 2 415 432 (1979) [Fr]

A food product claimed to contain the constituents of human milk in the right proportions is prepared from juice freshly extracted from fruit, vegetable etc. mixed with a dry lactic starter or brewers' yeast. The juice may be from carrot, wheat germ, barley germ or almond milk. There may also be present some sugar, e.g. lactose, and/or emulsified vegetable oil and/or extracts of cereals macerated in water. W&Co

47

Guideline for the production of soybean milk and soybean curd at the village level.

Steinkraus, K. H.

Food and Nutrition Bulletin 2 (2) 29–30 (1980) [En]
 [Cornell Univ., Geneva, New York, USA]

The main steps in producing soybean milk at village level are briefly described, i.e. cleaning, soaking (hydration), grinding, filtering, boiling, flavouring, storage. Preparation of soybean milk curd (Tofu, Chitaku) from the soybean milk is outlined. RM

48

Butter-like food product.

Bracco, U. (Societe des Produits Nestle SA)

British Patent 1 559 064 (1980) [En]

Anhydrous milk fat (<0.1% moisture) is subjected to molecular distillation to reduce its cholesterol content by 70–90%. The treated milk fat forms then all or part of the fat phase (e.g. 65 or 70% plus 35% soybean oil or 30% maize oil) and is mixed with an aqueous phase to produce a fat product with about 40–50% fat. An aqueous medium may be obtained by mixing at 70°C, 43 kg water, 3.5 kg acid casein, 2.9 kg calcium caseinate, 100 g cooking salt, 200 g sodium citrate and 80 g sorbic acid, followed by neutralization to pH 7.3. FL

49

Studies on soybean milk processing.

Rosario, R. R. del; Maldo, O. M.

NSDB Technology Journal 4 (4) 61–67 (1979) [En]
 [Dep. of Food Sci. & Tech., UP at Los Banos, College, Laguna, Philippines]

Studies were conducted to improve the flavour of soybean milk and reduce the amount of waste. Results showed that the use of running water for soaking slightly improved the flavour, although only 50% of the taste panel correctly identified the treated sample. The addition of certain levels of coconut milk improved the overall flavour profile of soybean milk although beyond these coconut flavour becomes noticeable. Different lots of soybeans were toasted at different temp. for various times. The toasted beans were used in the preparation of soymilk by cold water grinding; however, the milk still possessed a beany aftertaste which is attributed to insufficient deactivation of lipoxygenase enzyme and insufficient heat treatment of the beans. Reduction of residue during filtration is effected by dehulling the beans prior to soaking, which also reduced the necessary soaking time to soften the beans. This modification also permits grinding of the beans so that the whole endosperm can be made into milk without necessarily affecting the flavour. UPLB

50

Soybean quality changes during model storage studies.

Saio, K.; Nikkuni, I.; Ando, Y.; Otsuru, M.; Terauchi, Y.; Kito, M.

Cereal Chemistry 57 (2) 77–82 (1980) [14 ref. En] [Nat. Food Res. Inst., Min. of Agric., Forestry & Fishery, Japan]

Soybean quality changes were investigated as a function of storage time under various conditions. Colour of beans darkened; acid values of extracted crude oil and acidity of beans increased as deterioration progressed. The N solubility index and extractability of protein and of solids into soybean milk, decreased rapidly at high temp. and high RH of storage. Colour of soybean milk darkened and its pH decreased slightly. Hardness of tofulike gel from stored beans decreased. Levels of solids, nitrogenous constituents, sugar, and ash in the extracts obtained on water immersion definitely increased. Electron spin resonance spectra of stored beans suggested that the combination of phosphatidylcholine with the proteins in soybean milk was strengthened. Temperature and RH are both related to overall changes during storage, but RH seems to be more important. AS

51

Substitute cream concentrates.

Foley, T. (Unilever Ltd.)

British Patent 1 568 834 (1980) [En]

The products covered comprise vegetable oils and emulsifiers in the fat phase whilst the aqueous phase is constituted by various sugars, including about 6% lactose and 2% dried skim milk (both % are of the total product wt.), thickening agents and water. The product with about 27% moisture is reconstituted by mixing with 10–50% water. FL

52

Whippable topping mix.

Gilmore, C.; Miller, D. E. (SCM Corp.)

United States Patent 4 208 444 (1980) [En]

Whippable fluid low calorie topping composition have freeze thaw stability and contain 1–5% of a water

dispersible or soluble protein together with a stabilizing gum, a sweetener, a high solids fat, an ethoxylated mono or diglyceride and a polyoxyethylene sorbitan fatty acid ester. IFT

53

Processing of coconut milk (santan). I. Processing of santan into coconut butter.

Adinan Husin; Hashim Hassan, M.

Malaysian Agricultural Journal 51 (3) 299-304 (1978) [7 ref. En] [Agric. Product Utilisation, MARDI, Serdeng, Malaysia]

Mature whole coconuts were manually dehusked, halved and deshelled, and kernels were cleaned, macerated, and pressed in a locally-made hand press with no water added (only 27% fat extracted into the santan). The santan obtained was pasteurized at 74°C for 30 min until the fat content reached 32%, then immediately chilled and left overnight at 4.5°C. The cooled santan was churned in a home ice cream churn at about 120 rev/min for 30 min at a temp. of 18.5°C. The butter granules were separated from the whey, washed, worked until moisture content reached 13%, packaged and stored at refrigeration temp. A shelf life study involving observation of changes in appearance, development of peroxide value and % free fatty acid content was carried out on 5 coconut butters having moisture contents of 23, 18.6, 22.0, 20.4 and 13%. The 4 high-moisture butters all showed obvious deterioration at 21 days; the 13%-moisture butter was observed up to 63 days and found to be in good condition except for surface discoloration. The texture of butter is hard at refrigerated temp., it has to be heated to melt and is therefore suitable only for cooking purposes. AL

54

[Method of obtaining reconstituted butter.]

Kacherauskis, D. V.; Motakitis, P. P.; Bronyukaitene, N. B. (Union of Soviet Socialist Republics, Litovskii Filial Vsesoyuznogo Nauchno-issledovatel'skogo Instituta Maslodel'noi i Syrodel'noi Promyshlennosti) *USSR Patent* 706 050 (1979) [Ru]

A fat emulsion which in chemical composition and physico-chemical properties corresponds to cream is formed by melting the starting material, adding fresh whole or skim milk, pre-heated to 30-35°C, in 1:20 ratio, separating the mixture, and adding to the fat emulsion 1-2% by vol. of dried skim milk to prevent separation of free fat and ensure normal formation of butter granules during churning. The mixture is finally homogenized, pasteurized, cooled, ripened and churned. W&Co

55

Butter substitute semi-solid spread prepared from milk fat.

Kaiparra Co-operative Dairy Co. Ltd.

New Zealand Patent 178 788 (1979) [En]

A low-calorie spread for use as a butter substitute is produced by mixing 30-50% milk fat, 48-68% water, 0-2% emulsifier, 0-5% salt and 0-2% flavouring, vigorously agitating the emulsion to form a stable finely dispersed water-in-oil emulsion, chilling the emulsion and working it to a plastic semi-solid consistency. W&Co

56

Imitation cheese.

Anderson Clayton & Co.

Australian Patent 500 294 (1979) [En]

A process is described for making a food product resembling pasta filata or Cheddar cheese which contains 12-35% fat having a Wiley m.p. of 90°-110°F, 0.5-1.8% lactic acid or citric acid or their combinations, and dry ingredients, including calcium caseinate, in an amount equal to 15-33% of the food product and having a pH of 4.8-5.7. The process comprises the steps of melting the fat, forming an emulsion of the melted fat with water under vacuum, and blending under high shear mixing and under vacuum at a temp. above that of the m.p. of the fat. W&Co

57

Recombined milks and cream.

Newstead, D. F.; Goldmann, A.; Zadow, J. G.

Bulletin, International Dairy Federation No. 116, 7-13 (1979) [En] [New Zealand Dairy Res. Inst., Palmerston North, New Zealand]

Equipment for recombined milks and creams is described and the basic process, consisting of dissolving dried skim milk in warm water, adding milk fat (melted), homogenizing and subsequently processing as for raw milk, is outlined. Recombined pasteurized milk typically contains 80-95 g SNF/kg and 28-40 g fat/kg and may be homogenized or made with a cream line. Use of dried buttermilk (up to 10% of the SNF) gives a fuller flavour to the milk. The equipment consists of a vat with agitator and facilities for heating the contents, a powder/liquid blender or funnel and pump for adding powder, equipment for melting milk fat in 200 l drums, a clarifier, homogenizer (2 stage), pasteurization plant, packaging and refrigerated storage facilities and if required, bottle-washing equipment. Recombined sterilized, UHT and filled milks and cream are also mentioned. [See also preceding abstr.] JMa

58

Recombined butter.

Jebson, R. S.

Bulletin, International Dairy Federation No. 116, 30-32 (1979) [En] [New Zealand Dairy Res. Inst., Palmerston North, New Zealand]

Recombined butter is prepared from high quality anhydrous milk fat (of softening point $\leq 38^\circ\text{C}$ for tropical countries), dried skim milk (1-1.5%), 1.5-3.0% salt (normal dairy specification), 1.0% emulsifiers, and max. 16% water. The equipment consists of a melter for drums of milk fat, then a premix tank for addition of dried skim milk (20 min process) followed by salt, to water. A mix tank at 42-43°C is used for mixing of milk fat and emulsifier, followed by addition of milk serum from the premix tank. The product is then slowly cooled to $< 10^\circ\text{C}$ on a scraped-surface cooler, and either wrapped in parchment foil or canned. The butter should be smooth, without lumps and show no moisture; consistency and body should be similar to that of conventional butter though flavour may be different. [See also preceding abstr.] JMa

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FAB 7

SYNTHETIC DAIRY PRODUCTS

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H. J. BROOKES

EDITOR

1

Method of producing an aqueous soya suspension.
Hodel, T.; Buhler, M.; Rehacek, J. (Societe d'Assistance
Technique pour Produits Nestle SA)

United States Patent 4 194 018 (1980) [En]

Soybeans are ground in water at 90–100°C to form a dispersion of particles of substantially 100–500 µm, the dispersion is heated by steam injection to 120–160°C, thereby destroying the antitrypsin factor, and ground to form a suspension containing particles of protein and fat with dimensions of 2–10 µm, and cell wall debris of which the largest dimension does not exceed 40–300 µm. A cows' milk substitute may be prepared by mixing this suspension with an ultrafiltration permeate of cows' milk or whey. EJM

2

[Preliminary studies on production of caramelized condensed milk (doce de leite) from a milk/soya mixture.]

Souza, G. de; Mori, E. E. M.; Costa, S. I. da
Boletim do Instituto de Tecnologia de Alimentos, Brazil 16 (1) 35–40 (1979) [4 ref. Pt, en] [Inst. de Tecnologia de Alimentos (ITAL), Campinas, Sao Paulo, Brazil]

3 formulations for the caramelized condensed milk product: doce de leite (called in Spanish "dulce de leche") were compared: (i) 153.3 kg cows' milk, 153.3 kg liquid soy protein extract (with 2.5% fat and 7% solids), 43.8 kg sucrose, 10.95 kg glucose and 1.83 kg coconut milk; (ii) 184.21 kg cows' milk, 13.16 kg powdered soy protein extract (46% protein, 18% fat and 3% moisture), 51.32 kg sucrose, 13.16 kg glucose and 1.32 kg coconut milk; (iii) 243.3 kg cows' milk, 43.8 kg sucrose, 10.95 kg glucose and 1.83 kg coconut milk. The cows' milk, soy extract (if used) and sucrose were first concentrated to 70% solids in an open pan at 85°C, then the glucose and coconut milk were added after cooling, to 70°C. Finally the product (at 60°C) was put into glass containers, sterilized for 15 min at 90°C in a water bath, then cooled at 60°C by addition of water at ambient temp. to the bath. The time needed for the initial concentration process was 135, 98 and 110 min for formulations (i)–(iii) resp. Assessed on a 7-point scale by 20 experienced tasters, products (i) and (ii) both had identical average scores for flavour (5.93), appearance (6.40), consistency (6.40) and general preference (6.00). These scores all indicated moderate liking (point 6 on the scale). It is concluded that formulations (i) and (ii) are both acceptable as alternatives to the traditional doce de leite based entirely on cows' milk, and because it requires less time for concentration, formulation (ii) offers considerable savings in steam, electricity and labour. Formulation (i), although taking longer to process, also offers savings because the liquid soy extract is only about half the price of cows' milk. ADL

3

[Method and apparatus for thermal treatment of foods.] Verfahren und Vorrichtung zur thermischen Behandlung von Lebensmitteln.

Bach, J.

German Federal Republic Patent Application
2 834 515 (1980) [De]

Gas-tight or vacuum packs of foodstuffs, e.g. synthetic cream or cream cheese in a non-conductive packaging, e.g. polypropylene, are treated at sterilizing temp. by dipping in water or similar material heated to constant temp. in a high frequency a.c. field: a pressure is applied immediately prior to or simultaneously with the high frequency current to compensate for the internal pressure in the pack. The food packages are rapidly cooled in water at the end of the sterilizing period. W&Co

4

Cheese substitutes – threat or opportunity? (In *'Proceedings from the first biennial Marschall International Cheese Conference'* [see FSTA (1981) 13 1P59]) [Lecture]

Vakaleris, D. G.

pp. 261–271 (undated) [7 ref. En] [Borden's Inc., RR 1, Highway 45–52, Chebanse, Illinois 60922, USA]

After outlining reasons for the growth of cheese substitutes in the USA, the author deals with compositional and nutritional aspects, Food and Drug Administration proposed rules, nomenclature and labelling, and finally with the present status and the future of cheese substitutes. FL

5

Process for producing synthetic cheese.

Middleton, J. L. (Universal Foods Corp.)

United States Patent 4 197 322 (1980) [En]

An imitation cheese food claimed to have the flavour and texture of natural dairy cheese is prepared by forming an aqueous suspension of acid-precipitated casein, reacting the suspension at >80°F and pH 7 with a basic calcium salt to form a calcium caseinate solution, adjusting the pH of the solution to 5.9–6.9 by the addition of an acid, and adding a casein-coagulating enzyme at 80–110°F to form a solid calcium caseinate curd. An edible oil, salt and non-toxic emulsifying agent are blended at 140°F with the separated curd to form a smooth blended mixture to which sufficient acid is added to reduce the pH to 5. A homogeneous melted and pasteurized product is produced after thorough mixing. EJM

6

Technologic advances in the food industry: their influence on public health. [Review]

Childers, A. B.; Heidelbaugh, N. D.; Carpenter, Z. L.; Smith, G. C.; White, S.

Journal of the American Veterinary Medical Association 175 (12) 1291–1296 (1979) [52 ref. En] [Dep. of Vet. Public Health, Coll. of Vet. Med., Texas A&M Univ., College Station, Texas 77843, USA]

This review outlines several newly introduced food processing techniques and discusses the possible public health implications of the techniques, consideration being given to various studies which have examined these implications. The techniques covered are: mechanical deboning of meat, a process which salvages most of the meat remaining on bones after conventional hand deboning; electrical stimulation of carcasses to improve meat tenderness; carcass decontamination, e.g. by spraying with a weak Cl₂ solution or with acetic acid

(pH 2.0), by use of a high-pressure chlorinated wash (pH 6.0); meat tumbling, which involves the meat striking a rotating drum or being struck with paddles or baffles, such treatment resulting in various effects including increased meat temp., improved meat tenderness and improved and accelerated distribution of curing solution in the meat; modified atmosphere packaging of poultry, specifically CO₂-packaging combined with low temp. storage; aseptic packaging of UHT-processed milk; and the manufacture of engineered or fabricated foods, e.g. meat analogues prepared from soy protein. JA

7

[Problems with evaluation of bacteriological data for bakers' confectionery with artificial cream fillings.]

Zum Problem der Bewertung bakteriologischer Befunde cremehaltiger Konditoreiwaren.

Marcy, G.; Adam, W.

Deutsche Lebensmittel-Rundschau 76 (7) 225-227 (1980) [5 ref. De, en, fr] [Hygienisches Inst. der Freien & Hansestadt Hamburg, 2000 Hamburg 36, Federal Republic of Germany]

A total of 232 samples of artificial cream fillings of bakers' confectionery items purchased in Hamburg over the period Nov. 1977-March 1978 was evaluated microbiologically. Total counts, *Escherichia coli* and coliform titres and counts of yeasts, moulds, *Staphylococcus aureus*, *Proteus*, *Pseudomonas aeruginosa* and salmonellae were determined. A table of results is given, data being given separately for samples tested in the summer and in the winter. There are at present no bacteriological standards for bakers' confectionery products in the Federal Republic of Germany; the results were therefore considered in relation to Swiss regulations, and German regulations for dairy products and ice cream products. 61% of samples had total counts < 10⁵/g; 75% had total counts < 5 × 10⁵/g. 68% had coliform titres ≤ 10⁻²/g; 77% had coliform titres ≤ 10⁻³/g. 85% had *E. coli* titres < 10/g. 6.9% of samples had yeast counts > 10⁴/g. Only small numbers of samples contained moulds, *Proteus* spp., *Staph. aureus* or *Ps. aeruginosa*; none contained salmonellae. Counts tended to be higher in the summer than in the winter. Recommended microbiological tolerances are: aerobic count ≤ 5 × 10⁵/g; coliforms ≤ 10³/g; *E. coli* < 10/g; and yeasts ≤ 10⁴/g. No *Ps. aeruginosa*, *Proteus* sp., *Staph. aureus* or moulds should be present. AJDW

8

Influence of lactose and urea on the heat stability of artificial milk systems.

Kudo, S.

New Zealand Journal of Dairy Science and Technology 15 (2) 197-200 (1980) [6 ref. En] [Yakult Inst. for Microbiol. Res., 1796 Yaho, Kunitachi-shi, Tokyo 186, Japan]

Heat stability of artificial milk containing casein micelles, whey proteins, Ca, Mg, P, K, Na, Cl and citrate was slightly increased by the addition of 4.5% lactose or 0.035% urea. In the range 0-6% lactose, max. stability was at 2% lactose. With urea the stability increased up to 0.07% urea, the highest concn. tested. Coagulation

time at 140°C was doubled by the addition of lactose and urea together, with a marked max. at pH 6.9. Addition of glucose gave similar results to those for lactose, with rather higher stability at above pH 7. The non-reducing sugar sucrose did not affect the stability of the system. JMD

9

Functional characterization and heat induced interactions between milk products and soy isolate. Harte, B. R.

Dissertation Abstracts International, B 40 (3) 1106-1107: Order no. 79-21155, 282pp. (1979) [En] [Michigan State Univ., East Lansing, Michigan 48824, USA]

Properties were examined of blends of soy isolate with dried sweet whey, dried electrodialysed whey, whey protein concentrate, dried skim milk or sodium caseinate; the blends were subjected to various specific treatments e.g. heating, pH variation, addition of salts. Emulsion capacity, whipping properties and solubility were affected by the specific treatments. Solubility was in the order milk products > blends > soy isolate, and varied with treatments. Most treatments had little effect on viscosity, and most blends had a similar emulsion capacity and similar specific foam vol. (but slightly less stable) to the respective milk product. Flavour properties of the blends were only slightly less than those of the respective milk product. After heating at 77°C for 20 s, whey protein suffered substantial denaturation and soy protein began to dissociate into minor components, but casein was stable to this heat treatment and to 94°C for 10 s and 121°C for 5 s. DMK

10

[Attempts to extend the keeping quality of 'French-type' confectioners' cream by using chemical additives. I.]

Versuche zur Haltbarkeitsverlängerung von französischem Kream durch chemische Zusätze. I. Mahnecke, G.; Vogel, J.; Rimpel, R.

Bäcker und Konditor 28 (2) 38-40 (1980) [De] [Inst. für Getreideverarbeitung der DDR, Bergholz-Rehbrücke, German Democratic Republic]

Results from laboratory trials on the effects of individual preservatives or antioxidants and their combinations on 'French-type' confectioners' cream (63.5% margarine, 17.0% whole egg, 19.0% sugar and 0.5% flavouring) are presented; tests included effects of pH value and pretreatment (pasteurization) of the raw materials, and sensory deterioration resulting from use of Cordin FM, ascorbic acid, gallic acid propyl ester, potassium sorbate, sodium benzoate and *p*-hydroxybenzoic acid esters. Microbiological tests included detn. of acid-forming caseolytic, lipolytic and anaerobic microorganisms, *Escherichia coli*, yeasts and moulds. The following criteria were defined for preservation: total count < 300 000/g, coliform count < 100/g, staphylococci < 100/g and *Salmonella* negative/g. Results show that < 0.1% ascorbic acid alone or 0.075% ascorbic acid + preservatives can be added without taste deterioration. As pH of the cream decreases, the likelihood of sensory deterioration resulting from the use of preservatives increases. IN

11

New dairy foods - 1979. [Book]

United Kingdom, Commonwealth Bureau of Dairy Science & Technology

No. 18 (suppl. 8) 49pp. (1980) [En] Shinfield, Reading RG2 9BB, UK Price £7.00 (UK); £8.40 (foreign)

This bibliography is the 9th in an annual series published on behalf of a group of experts set up in 1971 by the International Dairy Federation. It contains worldwide, up-to-date information on many aspects of new dairy foods, and consists of 310 abstracts from *Dairy Science Abstracts* 41 (1979), classified according to type of product. JMa

12

[Simulated human milk.]

Morinaga Milk Co. Ltd.

Japanese Examined Patent 5 516 616 (1980) [Ja]

An alkaline casein solution is subjected to protease and then mixed with an alkaline earth metal salt. After removal of precipitates, the resulting β -casein solution is subjected to phosphatase, and the resultant product is combined with other nutrients. IFT

13

Utilization of membrane-produced oilseed isolates in soft-serve frozen desserts.

Lawhon, J. T.; Golightly, N. H.; Lusas, E. W.

Journal of the American Oil Chemists' Society 57 (9) 302-306 (1980) [19 ref. En] [Food Protein Res. & Development Cent., Texas A&M Univ., College Station, Texas 77843, USA]

The performance of membrane isolation processed (MIP) protein isolates from oilseed flour was assessed in frozen desserts. Taste panel scores of dessert samples for colour, odour, texture, flavour and overall acceptability were statistically analysed. Results showed MIP soy isolate could replace milk SNF (MSNF) (i) at the 80% level without flavour or texture loss, (ii) at the 60% level without loss in overall acceptability and (iii) at the 40% level without quality loss in colour and odour. MIP groundnut isolate replaced MSNF (i) at the 80% level without textural change, (ii) at the 60% level without loss in overall acceptability or desirable flavour and odour and (iii) at the 40% level without colour loss. MIP cottonseed protein isolate was used to replace MSNF (i) at the 60% level without flavour loss, (ii) at the 40% level with no textural changes and (iii) at the 20% level without loss in overall acceptability. Based on these results, MIP oilseed isolates (especially soy and groundnut) are a possible alternate source of protein for use in soft-serve frozen desserts to the replacement levels stipulated. AS

14

[Method for the manufacture of butter spread.]

Forman, L.; Pech, Z.; Vondruska, V.

Czechoslovak Patent 193 760 (1979) [Cs]

Sweet pasteurized cream is concentrated by addition of dried skim milk or milk concentrate and homogenized at 20-25°C and 10-25 MPa. A suitable pure dairy culture is added at 1-10% and the cream is ripened to 15-30°SH acidity. The coagulum is then stabilized with 0.5-5% of an edible stabilizer, is heated to 65-80°C and homogenized at 5 MPa. The homogenized product is filled into suitable containers and cooled to <10°C. STI

15

[The practical application of sugar esters to milk products.]

Ogimoto, K.

New Food Industry [Nyu Fudo Indasutori] 21 (8) 6-11 (1979) [31 ref. Ja] [Ryoto KK, Japan]

The use of sugar esters to stabilize oil/water and water/oil emulsions and to enable imitation milk products - coffee whitener, whipped cream, concentrated 'milks', margarine and ice-cream to represent better the properties of milk emulsions, is reviewed. BWH

16

[Technical and economic information on manufacture and marketing of the pasteurized soymilk product Vital.]

Moretti, V. A.; Bicudo Neto, L. de C.; Gasparino Filho, J. *Boletim do Instituto de Tecnologia de Alimentos, Brazil* 17 (1) 83-111 (1980) [10 ref. Pt. en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

This paper gives a detailed economic and technical analysis of the feasibility of an industrial-scale plant for manufacture of the soy milk product 'Vital', with a daily output of 50 000 l, covering investment required, production costs, the total budget, and profitability of the project. Data are also given on the manufacture of Vital, its proximate composition and amino acid composition, and the acceptability of Vital samples of various flavours. AJDW

17

[Dietetic cultured-milk product from soy milk and cows' milk.]

Dimov, N.; Dzhondzhorova, O.; Kozhev, A.

Khranitelna Promishlenost 29 (5) 12-14 (1980) [3 ref. Bg]

By numerous experiments an optimal method was evolved for manufacture of a cultured product containing soy milk and cows' milk. The soybeans are first soaked in water at 40-50°C for 18-20 h, with addition of (NH₄)₂CO₃ to extract unwanted carbohydrates etc. The husked soy is then mixed 1:5 or 1:7 with water or whey and, after grinding, it is filtered or centrifuged. The soy milk so obtained is pasteurized for 5-8 min at 95-100°C and cooled to 8-10°C. It is then

mixed 1:1 or 2:1 with yoghurt which is obtained from cows' whole or skim milk by standard methods, with incubation to 200–210°T acidity. The 1:1 mixture contains 2.5–3% fat and 3.8–4.2% protein (the protein content being 0.2–0.3% higher if whey is used). The 2:1 mixture (soy milk + cows' skim milk) is rich in phospholipids and contains no cholesterol and only 1% lactose. The products are considered suitable for patients with diabetes, allergies etc. Initial attempts to incubate the soy milk or a soy/cows' milk mixture, using *Lactobacillus acidophilus* + *Str. plantarum* or *L. bulgaricus* + *Str. thermophilus*, had been unsuccessful because of problems with flavour and consistency. ADL

18

Simulation of ghee flavour in butter oil.

Wadhwa, B.; Bindal, M. P.; Jain, M. K.

Indian Journal of Dairy Science 30 (4) 314–318 (1977) [2 ref. En] [Nat. Dairy Res. Inst., Karnal, Haryana, India]

When butteroil was treated with 0–7% freeze-dried skim milk dahi (SMDP) at 100, 110 and 120°C, highest ghee flavour score was obtained for that made with 5% SMDP heated for 3 min at 120°C; 5% freeze-dried whole milk dahi and spray-dried skim milk dahi gave similar scores. Addition of spray-dried skim milk or spray-dried whole milk to butteroil also simulated ghee flavour but scores were lower. Mean flavour scores for SMDP-treated butteroil, direct cream ghee, creamery butter ghee and desi ghee, resp., were 8, 6, 7 and 9. The type of culture used in dahi preparation (mixed culture or pure *Streptococcus diacetylactis* DRC1) did not influence the ultimate flavour of the butteroil. CDP

19

Nutritional properties of coconut oil: its use in filled milk.

Kaunitz, H.

Philippine Journal of Coconut Studies 4 (3) 39–43 (1979) [20 ref. En] [Dep. of Path., Columbia Univ., New York, USA]

In order to study the nutritional properties of milk substitutes containing coconut oil, monkeys (*Macaca fascicularis* (*cynomolgus*)) were given liquid filled milks or milk substitutes containing coconut oil. The liquid filled milks were prepared from cows' milk with cream removed at 120°F; to the skim milk was added either cream to give 3.25% fat, or 3.25% of hydrogenated coconut oil and emulsifier, or 3.25% of soyabean oil and emulsifier. The milks were pasteurized and homogenized. Dried milks were prepared by mixing condensed skim milk (30% TS) with 40% milk fat cream or with medium chain triglycerides (MCT) and emulsifier; the mixtures were pasteurized, homogenized and spray dried to 98% DM, with 72.5% SNF. An 'imitation milk' contained 3.5% sodium caseinate + whey, 5.2% lactose and salts 3.25% coconut oil and emulsifier and 0.75% sucrose. The milks were offered twice daily diluted 1:1 with water from 2–4 months of age through to adulthood, other foods being restricted. Most animals drank 600–688 ml of diluted milk/day and got 80–90% of total caloric intake from milk. Body wt. gain on each of the milks was similar and menstrual development of females was

normal. There were no significant differences between groups in serum total cholesterol, or in the other serum components which were studied. BWH

20

Utilization of peanut protein isolates in cheese analogs.

Chen, S. L.

Dissertation Abstracts International, B 41 (4) 1300: Order no. 80-23018, 118pp. (1980) [En] [Texas A&M Univ., College Station, Texas 77843, USA]

Studies on use of groundnut protein isolate in manufacture of cheese analogues by a rapid non-ripening procedure are described; emphasis was placed on the texture and the melting properties of the finished products. Protein was more important than the oil or emulsifying salts used in controlling the texture and melting properties of the finished products. Enzymic modification of the groundnut protein with papain considerably improved quality of the cheese analogues; chemical modification by succinylation was less effective. Polyacrylamide gel electrophoresis and scanning electron microscopy showed that cheese analogue quality increased with increasing mol. wt. of the groundnut protein isolate. Sensory evaluation showed that cheese analogues with acceptable colour, texture and melting characteristics may be prepared using groundnut protein and oil, but further studies on flavour development are required. AJDW

21

[Cultured soy milk – a new dietetic product.]

Bogdanov, I.

Khranitelna Promishlenost 28 (8) 12–13 (1979) [Bg, ru, de, en]

Soy milk prepared from unextracted, undenatured soybeans is fermented by a strain of *Lactobacillus bulgaricus* adapted to grow in soy media and said to produce a wide-spectrum antibiotic and a substance stimulating regenerative processes in the intestinal tract. No details of procedure are given, the product is stated to be deodorized by a preliminary treatment which also inactivates the anti-tryptic factor; the fermentation is claimed to improve the dietetic quality of soy, particularly through incorporation of live *L. bulgaricus* cells. Its value in lactose intolerance and for patients for whom animal fats are contraindicated is emphasised. In the natural state, cultured soy milk has the same keeping quality as cultured cows' milk; made into ice cream, it keeps for a few months; dried, it has a storage life of 6 months and may be used as replacement for dried cows' milk for all products. SKK

22

Processing of canned coconut milk and coconut butter. (In 'Proceedings of the International Conference on Cocoa and coconuts 1978' [see FSTA (1981) 13 7G448]) [Lecture]

Nordin, M.; Som, M.; Husin, A.; Hashim Hassan, M. pp. 713–720 (1980) [5 ref. En] [MARDI, Serdang, Selangor, Malaysia]

Coconut milk or "Santan" turned rancid within a few h when left uncovered at ambient temp. It could be

preserved by: pre-heating to 95–100°C for 5 min, homogenizing, filling into lacquered cans at 85°C, sterilizing at 121°C for 30 min, followed by simultaneous cooling and agitation. The canned 'santan' was homogeneous, free-flowing, and chemically and microbiologically stable at ambient temp. (25°C) for about 6 months. A butter-like product was also developed, involving pasturization at 74°C for 30 min, concn. to 32% fat at 74°C, churning at 120 rev/min for 30 min at 18°C, working the "butter" granules to 13% moisture content to give a product with firm texture. The "butter" was stable for about 21 days when stored at 7–10°C. Fat recovery in "butter" was 69.5%. RM

23

The influence of α_{2} -casein on the heat stability of artificial milks.

Kudo, S.

New Zealand Journal of Dairy Science and Technology 15 (3) 245–254 (1980) [16 ref. En] [Yakult Inst. for Microbiol. Res., 1796 Yaho Kunitachi-shi, Tokyo 186, Japan]

A system containing artificially-formed casein micelles was prepared and used to examine the influence of α_{2} -casein on its heat stability. Increasing the amount of α_{2} -casein resulted in increased turbidity indicating the presence of larger micelles and suggests that this protein plays a part in determining the size of the casein micelles in milk. At all pH values studied, α_{2} -casein reduced heat stability whether dialysed against skim milk or not. Systems containing α_{2} -caseins with different phosphate contents did not differ significantly in their coagulation times. A mixture of α_{2} -casein, κ -casein and β -lactoglobulin in milk dialysate coagulated within 1 min at 140°C at all pH values studied, whereas over the pH range 6.50–7.05 the coagulation times of mixtures of α_{1} - or β -casein with κ -casein and β -lactoglobulin in milk dialysate varied from 40 to 70 min under the same conditions. AS

24

Soy processing developments spawn improved analogs and extenders.

Moore, K.

Food Product Development 14 (3) 26, 30 (1980) [En]

Consideration is given to the following developments: CRS Co's new coextrusion system for analogue production which uses natural food bases and soy protein and overcomes the problems of flavour flash-off and leaching; General Foods improvement in the texture and functionality of soy protein products using a process called "freeze-alignment"; a modification of the freeze alignment method for fish analogues; and the production of novel protein isolates using ionic and hydrophobic properties by General Foods Ltd. VJG

25

The development of a soya-based yoghurt. I. Acid production by lactic acid bacteria.

Pinthong, R.; Macrae, R.; Rothwell, J.

Journal of Food Technology 15 (6) 647–652 (1980) [11 ref. En] [Dep. of Food Sci., Univ. of Reading, London Road, Reading RG1 5AQ, UK]

Graphically presented results show production of titratable acidity in soy milk by *Lactobacillus bulgaricus* and *Streptococcus thermophilus*, alone or in combination, with or without supplementation with yeast extract and/or glucose. *L. bulgaricus* did not produce acidity without supplementation; optimum conditions for this organism were 0.1% (w/v) yeast extract + 1% (w/v) glucose, under which conditions 0.84% acidity (as lactic acid) was developed after 24 h at 43°C. Corresponding conditions for *S. thermophilus* were 0.1% yeast extract + 0.5% glucose, producing 0.56% acidity; the same conditions were optimal for the combination of the 2 microorganisms, producing 0.68% acidity. The product produced by *L. bulgaricus* alone had sufficient acidity and a pH of 3.8. DIH

26

The development of a soya-based yoghurt. II. Sensory evaluation and analysis of volatiles.

Pinthong, R.; Macrae, R.; Rothwell, J.

Journal of Food Technology 15 (6) 653–659 (1980) [8 ref. En] [Dep. of Food Sci., Univ. of Reading, London Road, Reading RG1 5AQ, UK]

Soy milk was fermented with *Lactobacillus bulgaricus* (BULG) and *Streptococcus thermophilus* (THERM) alone or singly, with appropriate supplementation with yeast extract and glucose, and the products were evaluated organoleptically. Volatiles were collected from products by distillation with N₂ at 40 mm Hg at 37°C, and analysed gas chromatographically. The organoleptic results showed that fermented soy milk was rated significantly higher than soy milk (acidified to pH 4.1), and that fermented cows' milk was rated higher than all fermented soy milks. The different fermented soy milk samples were ranked for preference in the order BULG alone, the combination, THERM alone. Further studies with the apparently preferred BULG and BULG + THERM samples showed that BULG was preferred to BULG + THERM, but that addition of strawberry flavour did not improve acceptability. Addition of 5% sugar + banana flavour is stated to produce an acceptable BULG product. Amounts of volatiles in soy milk and the 3 (unflavoured) fermented soy milks, BULG, BULG + THERM, and THERM are tabulated, including (relative amounts): n-hexanal 10.48, 4.47, 6.63 and 6.25, resp.; and n-pentanal 1.45, 2.42, 26.99 and 34.10. High levels of these compounds in soy milks fermented by THERM may explain their less acceptable taste; decrease in n-hexanal in fermented milks vs. soy milk may explain improvement in taste on fermentation. Contents of acetaldehyde, acetone, methanol and ethanol also differed between products. [See preceding abstr. for part I.] DIH

27

The development of a soya-based yoghurt. III.**Analysis of oligosaccharides.**

Pinthong, R.; Macrae, R.; Dick, J.

Journal of Food Technology 15 (6) 661-667 (1980)

[9 ref. En] [Dep. of Food Sci., Univ. of Reading, London Road, Reading RG1 5AQ, UK]

Oligosaccharide utilization by a number of lactic acid bacteria was studied in soy milk; tabulated data show contents of stachyose, raffinose and sucrose (determined by HPLC after Carrez treatment of ethanol extracts) after fermentation of soy milk to pH 4.0-5.8 under various conditions. Contents of stachyose and raffinose in soy milk were 438 and 114 mg/100 ml, resp.; corresponding contents after fermentation were with *Lactobacillus fermenti* 351, 0; *L. fermentum* 336, 37; *L. delbrueckii* 411, 93; *Pediococcus pentosaceus* 410, 93; *L. acidophilus* 442, 113; *L. bulgaricus* (in supplemented soy milk) 438, 105; and *L. fermenti* + *L. bulgaricus* (under optimum fermentation conditions) 385, 0. Decrease in oligosaccharide content was small, and inclusion of *L. fermenti* solely for this purpose would

not be justified. Changes in starter preparation method and supplementation levels may also affect oligosaccharide consumption. [See preceding abstr. for part II.] DIH

28

Stability studies on coconut milk and plant protein isolates based products. I. Physical properties.

Escueta, E. E.

Philippine Journal of Coconut Studies 5 (1) 63-65

(1980) [3 ref. En] [Dep. of Food Sci. & Tech., UP at Los Banos, College, Laguna, Philippines]

Reconstitution of beverage type, evaporated type and sweetened condensed type products were made from coconut milk plus mungo protein isolate (MPI) and from coconut milk plus non-fat dry milk (NFDM). Some physical properties of the mixtures were determined. Cream layer formation was observed to be significant for both the beverage type and evaporated type products, but not significant for the sweetened condensed type product. This behaviour was true for both the MPI and NFDM formulations. Cream separation rate was observed to be fastest during the first 5-10 h of standing and continued on a slower rate up to 24 h and then remained unchanged throughout the storage period. Protein coagulation was observed in 50-80% of the samples when the beverage type and evaporated type products were sterilized under pressure. It was also observed that some organisms survived sterilization for 15 min at 15 lb pressure. The viscosities of the beverage type and the evaporated type products were 5 cP and 8 cP resp., while the sweetened condensed type resulted in high viscosity values ranging from 397 to 426 cP. UPLB

29

Cottonseed and soy protein ingredients in soft-serve frozen desserts.

Simmons, R. G.; Green, J. R.; Payne, C. A.; Wan, P. J.;

Lucas, E. W.

Journal of Food Science 45 (6) 1505-1508 (1980) [13

ref. En] [Food Protein Res. & Development Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Six vegetable protein ingredients (glandless cottonseed flour, liquid cyclone process deglanded cottonseed flour, glandless cottonseed storage protein isolate, soy flour, soy protein concentrate, and soy protein isolate) were evaluated as partial replacements for milk SNF in soft-serve frozen desserts. Physical tests and sensory evaluations were conducted with the experimental desserts. All ingredients tested produced satisfactory results at low levels of substitution for milk SNF. At higher levels of substitution, glandless cottonseed storage protein isolate appeared to be the best of the materials tested. IFT

30

Hard cheese substitute from soy milk.

Abou-El-Ella, W. M.

Journal of Food Science 45 (6) 1777-1778 (1980)

[10 ref. En] [Food Sci. Dep., Fac. of Agric., Zagazig Univ., Egypt]

A substitute for "Ras", a hard cheese, was made successfully from soy milk. The product gained a cheesy flavour during 3-months of ripening. Body and texture and colour of cheese made with soy milk were compared to cheese made with a mixture of soy milk and cow's milk. Results showed that body and texture, as well as colour, were relatively lower than cheese made from a mixture of soy milk and cow's milk. The latter possessed more acceptable properties. IFT

31

[Coffee whitener.]

Fuji Oil KK

Japanese Examined Patent 5 543 739 (1980) [Ja]

Coffee whitener compositions are based upon fats, lecithin, and a sugar ester. IFT

32

[Soybean curd.]

Ajinomoto KK

Japanese Examined Patent 5 545 171 (1980) [Ja]

In the preparation of soybean curd, calcium or magnesium salt of L-glutamic acid, 5'-inosinic acid or 5'-guanylic acid is added to soybean curd of homogeneous structure to improve taste. IFT

33

[Fried bean curd.]

Nisshin Oil Mills KK

Japanese Examined Patent 5 546 693 (1980) [Ja]

Vegetable protein is blended with ascorbic acid or its salt, edible gum and water to give a dough like material. This material is then fried in an oil to give fried bean curd with good properties. IFT

34

Yield and quality of soymilk processed by steam-infusion cooking.

Johnson, L. A.; Deyoe, C. W.; Hoover, W. J.
Journal of Food Science 46 (1) 239-243, 248 (1981)
 [18 ref. En][Food Protein R&D Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Traditional soymilk is boiled for approx. 60 min at 99°C, pH 6.7, which reduces trypsin inhibitor (TI) activity by >90%, to improve nutritional value. We evaluated continuous, direct steam-infusion cooking that facilitated higher temp. (99-154°C) than that traditionally used for cooking soymilk. At temp. >120°C in steam-infusion cooking we observed consistent temp.-dependent patterns in yields of soymilk, solids, and protein, characterized by an initial decrease, followed by a rise to max. recovery, then by a final decrease. At 154°C, pH 6.7, max. recovery occurred at the same point as did adequate inactivation of TI. As much as 90% of the slurry, 86% of the soybean solids, and 90% of the protein were recovered as soymilk after centrifuging at 1050 g_n for 5 min. Under optimum conditions for steam-infusion cooking the soymilk also retained <8% residual TI activity, and less chemical browning. Using traditional cooking methods, about 72% of the slurry, 61% of soybean solids, and 73% of the protein are recovered. IFT

35

Process for producing soybean milk.

Wakana, T.; Okubo, K.; Hanaoka, Y. (Kibun Co. Ltd.)
United States Patent 4 241 100 (1980) [En]

Process is described for producing soybean milk having no undesirable beany flavour or bitterness, in which ground cooked soybeans are contacted with aqueous sodium bicarbonate at temp. >80°C followed by extraction of protein and water soluble components. IFT

36

[Soybean milk beverage.]

Nisshin Oil Mills KK

Japanese Examined Patent 5 545 168 (1980) [Ja]

Defatted soybean is heated, acidified with organic acid, reacted with acid protease, and centrifuged to give a supernatant. The supernatant is further reacted with peptidase, and the resultant product mixed with sugar, organic acid, flavour, etc., to give a soybean milk beverage. IFT

37

[Powdered soybean milk.]

Chokai Miso KK; Snow Brand Milk Products

Japanese Examined Patent 5 543 740 (1980) [Ja]

A soluble powdered soybean milk product without a soybean odour is prepared by boiling skinless soybeans in an aqueous composition containing an organic acid and orthophosphoric acid, followed by washing and treatment with protease and a lactobacillus. IFT

38

Low fat comestible spread substitutes.

Miller, D. E.; Werstak, C. E. (SCM Corp.)

United States Patent 4 238 520 (1980) [En]

Process is described for making a low fat comestible spread consisting mainly of fat, water, an oil-in-water lipoidal emulsifier, and water soluble or water dispersible edible thickening agent, the spread having a plastic consistency and similar properties to margarine. IFT

39

A study of the rehydration properties of a milk analogue containing soy products and cheese whey.

Holsinger, V. H.

Dissertation Abstracts International, B 41 (1) 121:
 Order no. 8015890, 463pp. (1980) [En][Ohio State Univ., 190 North Oval Drive, Columbus, Ohio 43210, USA]

Commercially manufactured samples of whey-soy drink mix consisted of approx. spherical particles with a smooth surface and some aggregation. After reconstitution with water to 15% TS, samples prepared with full fat flour contained many irregular particles with convoluted surfaces, fibrous in nature, while samples prepared with toasted defatted flour contained more nearly spherical, aggregated particles with rough-textured surfaces. Many particles were proteinaceous and coated with fat droplets. Emulsifiers (up to 0.5%) destabilized the powders. Particle size and phase separation after reconstitution were related to viscosity, which was significantly influenced by the processing variables homogenization pressure, TS of the homogenized mixture and emulsifier concn.; viscosity on reconstitution was highest and phase separation least in samples homogenized at high pressure and high TS. DMK

40

[Effect of cupric ion on the flavour of soya milk.]

Hühn, S.; Pinheiro, A. J. R.

Revista CERES 27 (150) 145-154 (1980) [14 ref. Pt, en]
 [Fazenda Exp., EMBRAPA, 36155 Coronel Pacheco, Minas Gerais, Brazil]

A study was made of the effect of the cupric ion as an inhibitor of the formation of off-flavours during the manufacture of soybean milk, and the influence of this ion on the composition of the soybean milk. 6 levels of cupric ion, added as $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ were tested: 0, 2, 6, 12, 16 and 20 p.p.m. All soybean milk so obtained was compared to soybean milk prepared by the traditional modified method. Analysis of the results showed significant flavour improvements when the Cu^{2+} ion was used ($P < 0.01$). 12 p.p.m. was the most acceptable level to panelists, this was certainly due to the much better flavour of the milk compared to other treatments. Total solids, total N, fat, density, ash and Ca were not significantly influenced (F-test, 5% level) when the Cu^{2+} ion was added to the milk, but the analysis of variance did show a significant ($P < 0.01$) difference for residual cupric ions found in the soybean milk. The copper content of the test soybean milk was below the tolerance level for adults. AS

41

Modeling the kinetics of heat inactivation of trypsin inhibitors during steam-infusion cooking of soymilk.

Johnson, L. A.; Hoover, W. J.; Deyoe, C. W.; Erickson, L. E.; Johnson, W. H.; Schwenke, J. R.

Transactions of the ASAE 23 (5) 1326-1329 (1980)

[14 ref. En][Food Protein R & D Cent., Texas A & M Univ., College Station, Texas, USA]

The effect of heat on trypsin inhibitor (TI) activity during steam-infusion cooking of soy milk was studied. At 154°C only 40 s process time reduced the TI to the same level as conventional cooking at 99°C for 60 min. Between 99° and 154°C, the kinetics of TI inactivation followed behaviour exemplified by the summation of 2 first-order reactions. Spline fitting functions effectively modelled the data with r^2 ranging from 0.984 to 0.999. The heat-labile reaction was attributed to Kunitz inhibitor (about 85% of the original TI activity), and the heat-stable reaction to Bowman-Birk inhibitor [see FSTA (1977) 9 8G609]. Arrhenius equation kinetic constants for each reaction were calculated. AS

42

[Method for manufacturing a spreadable dairy product.] Verfahren zur Herstellung eines streichfähigen Milchproduktes.

Balla, A.; Hülsen, U.; Schmidt, H.-H.; Krüger, P. (VEB Kombinat Fortschritt Landmaschinen, Betrieb Kyffhäuserhütte Artern)

German Democratic Republic Patent 143 203 (1980) [De]

A spreadable dairy product is made from cream, without special cream ripening or the increased energy consumption in complex equipment. The cream is pasteurized and cooled to approx. 279°K, which is below the processing temp. (283-290°K). Duration of holding or maturing the cream between tempering and processing at this temp. is comparatively short. IN

43

Imitation acid-set cheese.

Rule, C. E.; Manning, R. G.; Zielinski, R. J. (SCM Corp.)

United States Patent 4 232 050 (1980) [En]

An improved hard, acid-set imitation cheese is manufactured from a formulation containing a hydrogenated vegetable oil, an edible protein of which a portion preferably is sodium caseinate, a Ca containing salt, edible acid, and an organic emulsifier which is fluid at ambient temp. and has an HLB value of > 10. A typical formulation (in % by wt.) consists of Durkex 500, 23.5; polyoxyethylene mono- and diglycerides of fatty acids, 0.5; sodium caseinate, 21.0; calcium caseinate, 5.3; calcium chloride, 0.9; sodium chloride, 0.8; lactic acid, 0.9; potassium sorbate, 0.1; water 47.0; it is particularly suitable for the preparation of Mozzarella type cheese suitable for pizza pies. EJM

44

Coffee whitener and use of fluid shortening therein.

Gilmore, C.; Miller, D. E. (SCM Corp.)

United States Patent 4 239 786 (1980) [En]

Method for the manufacture of a fluid composition useful as a coffee whitener comprises mixing together as major ingredients a sweetener, a water dispersible protein, a lipid system and water; the lipid system is a shortening composition comprising hydrogenated, beta-forming predominantly C16-C18 fat. IFT

45

Powdered compositions for cream toppings.

Trop, M.; Livne, A. (Israel, Ben-Gurion University of the Negev Research & Development Authority)

UK Patent Application 2 061 692A (1981) [En]

A powdered product suitable for making cream toppings, comprises by wt. (approx.) 30-45 parts of a vegetable lipid whipping agent, 5-15 parts dried whole milk, 3-5 parts sodium caseinate and 30-60 parts sugar, plus optionally, a stabilizer such as pre-cooked starch or instant gelatin. The topping is prepared by whipping about 100-110 g product with 200 ml cold milk or water. FL

46

Preparation of low fat imitation cream cheese.

Baker, D. B. (Pro-Mark Co.)

United States Patent 4 244 983 (1981) [En]

The product is made by blending skim milk, 30% fat cream and a stabilizer mixture in such amounts as to obtain a fat content in the final product of, preferably, 1.15-1.35%, heating the mixture at 170-185°F for a time sufficient to effect pasteurization and to form a homogeneous mixture, admixing dry Cottage cheese curd in such amounts as to represent 70-85% (by wt.) of the contents in the end product, agitating the mixture while maintaining it at a temp. of 90-100°F, adding various flavourings and preservatives, and homogenizing it at gauge pressures of 500-5000 lb/in². The end product provides only 60 calories per serving. EJM

47

Imitation milks from *Cicer arietinum* (L.), *Vigna unguiculata* (L.) Walpers and *Vigna radiata* (L.) Wilczek and other legumes.

Caygill, J. C.; Jones, J. A.; Ferber, C. E. M.

Journal of the Science of Food and Agriculture 32 (6) 601-607 (1981) [25 ref. En][Tropical Products Inst., 56/62 Gray's Inn Road, London WC1X 8LU, UK]

Vegetable milks were prepared in the laboratory from mung bean (*V. radiata*), cowpea (*V. unguiculata*) and chick-pea (*C. arietinum*) by homogenization of a filtered aqueous extract of the ground legume with soybean oil. Emulsions stable to pasteurization were made from the first two. Pigeon pea (*Cajanus cajan*) and black gram (*V. mungo*) were found to be unsuitable as bases for milks prepared by simple processing. The N, oil, sugar and ash contents of the first 3 legumes, and of milks prepared from them, were determined. Imitation

milks are intended to resemble animal milks nutritionally, and whilst the contents of K and P were acceptable, these vegetable milks were low in Na, Ca and Zn. The trypsin inhibitory activity, whilst low in comparison with soy milk, was partially stable to pasteurization. The amino acid composition indicated that it would be desirable to complement legume proteins with cereal proteins to prepare vegetable milks. AS

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FAB 7

SYNTHETIC DAIRY PRODUCTS

SELECTED FROM VOLUME **14**

FOOD SCIENCE AND TECHNOLOGY ABSTRACTS

under the direction of:-

Commonwealth Agricultural Bureaux, Farnham Royal, Slough; Gesellschaft für Information und Dokumentation, Frankfurt am Main; Institute of Food Technologists, Chicago; Centrum voor Landbouwpublikaties en Landbouwdocumentatie (Pudoc), Wageningen.

INTRODUCTION

Food Annotated Bibliographies (FABs) are collections of abstracts on specific topics in food science and technology. The topics are chosen by the staff of the International Food Information Service as being of particular interest or importance. The topics normally interest individual workers, who may not require the full information provided in Food Science and Technology Abstracts, from which the abstracts for FABs are taken. The size and the cost of the FABs are controlled as much as possible with the interests of individual workers in mind.

Titles of the FABs now available are given on the back cover of this booklet. For up-to-date lists of FABs or suggestions for new topics please write to the address on the back cover. New subjects are searched for at least the five most recent volumes of Food Science and Technology Abstracts. Thereafter each FAB is updated monthly. Copies of each month's abstracts on any topic may be obtained as indicated on the back cover of this publication. At the end of each volume of up-dating, the abstracts are merged and made available as a separate supplement to the original FAB.

Some of the larger FABs have been divided into sections to facilitate use. FAB 47 also has a subject and author index provided.

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Coverage of the subject has been restricted to that of Food Science and Technology Abstracts, which covers over 1200 of the important food journals, patents from 20 countries and books published world-wide. Every effort is made to include all significant references, but editorial discretion is used on the many articles of borderline interest. If the reader particularly needs an exhaustive search of the subject, we will be pleased to provide any other references that we have available. We would, in any case, encourage readers to write or telephone us with any comments or queries that they may have.

H. BROOKES

EDITOR

1

[Multiple comparisons in contingency tables. Application to study of the acceptability of Vital, a soy milk product.]

Shirose, I.; Mori, E. E. M.; Paiva, I. J. de
Coletanea do Instituto de Tecnologia de Alimentos 11, 65-88 (1980) [6 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

2

The special values of protein extenders in improving frozen food quality.

Anon.

Quick Frozen Foods 42 (2) 14-15, 18, 20, 22-23 (1979) [En]

Consideration is given to the use of soy proteins as extenders in meat, fish, vegetable creams, and baked goods and as analogues. The extenders are low priced because of over production and have nutritional, textural and flavour advantages when added to the product. VJG

3

Predicting protein quality of corn-soy-milk blends after nonenzymatic browning.

Bookwalter, G. N.; Kwolek, W. F.

Journal of Food Science 46 (3) 711-715 (1981) [21 ref. En] [USDA N. Reg. Res. Cent., SEA-AR, Peoria, Illinois 61604, USA]

A corn-soy-milk high-protein supplement (containing 59.2% partially gelatinized corn meal, 17.5% defatted, toasted soy flour, 15.0% nonfat dry milk, 2.7% mineral premix, 0.1% vitamin premix, and 5.5% soybean oil) for children, was exposed to high temp. Various degrees of nonenzymic browning occurred, and product colour ranged from yellow to dark brown. Progressively greater deterioration of protein quality as measured by protein efficiency ratio (PER) occurred with increasing colour change as measured by Hunter colour values. Protein quality was also estimated by the *Tetrahymena pyriformis* W bioassay and essential amino acid analysis. Linear relationships between PER, available lysine, and Hunter "L" values provided rapid methods for predicting protein quality. Correlation with PER was 0.95 using Hunter "L" and 0.88 using available lysine values. A colour standard plate was developed to provide rapid field screening. IFT

4

[Extraction of soy 'milk']

Teixeira Neto, R. O.; Cavini, M. L.; Vitali, A. de A.
Coletanea do Instituto de Tecnologia de Alimentos 11, 37-51 (1980) [23 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

Studies on manufacture of soy milk by 1- and 2-stage countercurrent extraction procedures are described, water:soybean ratios of 5:1 and 10:1 being used. Flow diagrams of the processes used are presented, together with materials balance and yield data. Yields of TS and soluble solids were, resp.: 1-stage, 10:1 ratio, 76 and 93%; 2-stage, 10:1 ratio, 81 and 99%; 1-stage, 5:1 ratio,

68 and 86%; and 2-stage, 5:1 ratio 80 and 98%. The relative merits of the various processes are discussed. Data are also presented showing the liquid/solid separation performance of decanters, hydraulic presses, centrifuges and filter cloths. AJDW

5

[Manufacture of dried soy milk.]

Travaglini, D. A.; Aguirre, J. M. de; Travaglini, M. M. E.; Silveira, E. T. F.; Delazari, I.; Figueiredo, I. B. de
Coletanea do Instituto de Tecnologia de Alimentos 11, 139-152 (1980) [22 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

Pilot plant studies were conducted on manufacture of spray-dried soy milk, using extraction methods developed for use in manufacture of the liquid soy milk product Vital. The process is based on cleaning and husking the soybeans, cooking in water at 130°C, centrifugation to remove solid residue, concentration of the extract in a scraped-surface evaporator, homogenization, and spray drying. Data are included for the chemical and nutritional value of the spray-dried product. Protein efficiency ratio decreased with increasing temp. during spray-drying. At a spray-drier temp. of 160°C, it was 2.15 (vs. 2.50 for casein). Proximate composition of the spray-dried product was 3.0% moisture, 46.6% protein, 28.6% fat, 6.60% ash, 0.8% fibre and 14.4% carbohydrates (by difference). Apparent digestibility of proteins was 82%; protein dispersibility index was 92%. No increase activity was detectable; trypsin inhibitor activity was low. Peroxide value is low; microbiological quality is good. Data are also given for the composition and nutritional value of the residue left from soy milk extraction. AJDW

6

Simulated cheese.

Bell, R. J.; Wynn, J. D.; Denton, G. T.; Sand, R. E.; Cornelius, D. L. (Anderson Clayton & Co.)

Australian Patent 503 667 (1980) [En]

Simulated cheese with in situ formation of caseinate wherein the acid ingredient comprises the following combinations: (i) sodium and/or calcium caseinate formed in situ in an amount between 15% and 33% by wt. of the food product; (ii) lactic acid, citric acid or malic acid or any combination thereof, in an amount between 0.5% and 1.8% by wt. of the food product; and (iii) fat having a Wiley m.p. between 90° and 110°F in an amount between 12% and 35% by wt. of the food product, the constituents being a substantially gas-free homogeneous blend mixed at above the melting point of the fat under a high-shear mixing and under sub-atmospheric pressure. W&Co

7

Whey-based nonfat milk replacers in light chocolate-flavored compound coatings.

Mohler, M. R.; Hugunin, A. G.; Ebers, K.

Food Technology 35 (6) 79-81 (1981) [9 ref. En] [Food Ingredients Group, Foremost McKesson Res. & Development Cent., 6363 Clark Avenue, Dublin, California 94566, USA]

Sweet whey, 10, 25 or 50% demineralized whey and calcium caseinate were used to replace all of the dried skim milk in a light coloured chocolate flavoured compound coating prepared by a 2-stage process. After initial tasting of 12 blends, the following 4 were further evaluated: A, whey/calcium caseinate (19% protein); C, whey/calcium caseinate (24% protein); G, 10% demineralized whey/calcium caseinate (19% protein); and K, 25% demineralized whey/calcium caseinate (17% protein). Preference ratings (on a 3-point scale) for coatings containing blend G, blend C and dried skim milk were 1.9, 2.1 and 2.0, resp. with hedonic ratings (9-point scale) of 6.4, 6.4 and 6.5, resp. Less calcium caseinate was required to achieve the desired milky flavour when the whey solids had been partially demineralized. Costs/cwt of blends G and C were \$37.62 and \$37.80 resp. vs. \$89.59 for dried skim milk. FL

8

A computer-based graphical method for evaluating protein quality of food blends relative to cost. Traver, L. E.; Bookwalter, G. N.; Kwolek, W. F. *Food Technology* 35 (6) 72-74, 76-78 (1981) [22 ref. En] [N. Reg. Res. Cent., Sci. & Education Administration, USDA, 1815 N. University Street, Peoria, Illinois 61604, USA]

The development of a simple graphical representation for comparison of several product characteristics and the use of this method to formulate corn-soy-milk blends that are low in cost and high in protein quality and quantity are discussed. Proportions of corn meal, defatted soy flour, L-lysine HCl, soy bean oil, vitamins, and minerals were held constant as the proportions of dried skim milk (DSM), groundnut flour, and whey protein concentrate (WPC) were varied. Computer programmes were written to calculate product properties of various blends and to graphically present results. Contour lines of constant protein content, cost, and chemical score were plotted on triangular graphs to compare effects of varying the proportions of some ingredients within a system. The most favourable results are tabulated and show that WPC can be included in the formulations to the exclusion of DSM and in much larger % than groundnut flour. In virtually all formulations, the S-containing amino acids are limiting, but in only one instance was the addition of L-lysine HCl necessary to increase the chemical score. The method described can also be applied to other food mixtures. SP

9

[Coffee whitener.]

Fuji Oil KK

Japanese Examined Patent 5 612 425 (1981) [Ja]

Process is described in which a fine aqueous emulsion of oil is mixed with an aqueous solution of casein alkali metal salt, followed by homogenization and cooling. IFT

10

Filled cream concentrate.

Unilever Ltd.

British Patent 1 583 355 (1981) [En]

A filled cream concentrate comprises essentially 35-50% fat of a dilatation value at 20°C of at least 200, an aqueous phase with about 22% water, > 5% sugar, e.g. lactose, and 1-6% egg yolk. The product is pasteurized at 85°C for 26 s, homogenized and aseptically packaged. When diluted with milk to 30% fat content, it could be whipped to specific vol. of 2.8 ml/g and remained stable for ≥ 4 h during storage at 20°C. FL

11

[Turbidity of coagulating soybean milk.]

Nakashima, K.; Imai, N.

Journal of Japanese Society of Food Science and Technology [Nippon Shokuhin Kogyo Gakkaishi] 27 (2) 89-91 (1980) [5 ref. Ja, en] [Osaka Women's Univ., Daisen-cho, Sakai, Osaka, Japan]

During the early stages of coagulation by Ca ions, the turbidity of soybean milk increased linearly with the logarithm of time. Both the activation energy and the 'a' factor of coagulation rate ($\log k = a - E/2.30RT$) showed a linear relationship with Ca ion concn. in the soybean milk. [From En summ.] JA

12

The 'intrinsic' thermal conductivity of wet soy protein and its use in predicting the effective thermal conductivity of soybean curd.

Yano, T.; Kong, J. Y.; Miyawaki, O.; Nakamura, K.

Journal of Food Science 46 (5) 1357-1361 (1981) [En] [Dep. of Agric. Chem., Univ. of Tokyo, 113, Tokyo, Japan]

The applicability of 4 heat conduction models to heterogeneous materials was examined for defatted soy protein curd with various water contents. Only the series model was applicable to both frozen and unfrozen soy protein curds. The "intrinsic" thermal conductivity of wet soy protein was determined on the basis of the series model to be 0.300 W/mK for unfrozen curd and 0.488 W/mK for frozen curd. By using the series model and the "intrinsic" thermal conductivity values of soy protein, the effective thermal conductivity of fat-containing soybean curd, unfrozen or frozen, was predicted satisfactorily. The "intrinsic" thermal conductivity values of wet soy protein were independent of temp. in the ranges from 0° to 20°C and from -5° to -20°C. IFT

13

[Bean milk deodorization.]

Mitsubishi Chemical Industry KK

Japanese Examined Patent 5 606 256 (1981) [Ja]

Process is described in which soybean milk is deodorized by the addition of an ammonium or alkali metal salt, followed by adjustment to pH 7.5-9.0. IFT

14

[Frozen coconut milk.]

Willmann, B.

French Patent Application 2 454 276 (1980) [Fr]

Coconut milk, which is normally sold in cans and includes additives, is here homogenized without the use of additives and is then introduced into plastics tubs which are then closed and immediately deep-frozen. W&Co

15

A centrifugal method for characterization of salad dressing emulsions.

McDermott, R. L.; Harper, W. J.; Whitley, R.

Food Technology 35 (5) 81-82, 84-85, 87 (1981) [11 ref. En] [Dep. of Food Sci. & Nutr., Ohio State Univ., Columbus, Ohio 43210, USA]

The method described is a modification of a previously published procedure [see *Milchwissenschaft* (1968) 23, 473] for evaluating free fat and creaming of cream products; modification was made in the dyes used, the solvent carriers, dye concn. and the centrifugal procedure. The method utilizes a double dye (2% methylene blue in 21% ethanol and Oil Red 'O' in 70% ethanol:acetone, 1:1) indicator system with blood microhaematocrit capillary tubes and centrifuge. The microhaematocrit centrifuge develops high forces and facilitates quantitation of the emulsion layers in the capillary tubes. The method permits evaluation of creaming rate, stability to coalescence and emulsion vol. index in various types of salad dressing ranging from mayonnaise to pourable dressings. Various studies of the method are reported including: effect of dye on emulsion characteristics reproducibility of the method; and effect of varying centrifugation time (0.5-40 min). Calculation of the emulsion vol. index and emulsion rating is discussed. It is emphasized that the method cannot predict long-term shelf stability. It is concluded that the method can differentiate salad dressing emulsions and may be useful in quality control and product development. Preliminary studies have indicated that the method may also be used for characterizing emulsions in other fluid food systems, e.g. coffee whiteners, whipped toppings. JA

16

Effect of equilibrium water activity on the bulk properties of selected food powders.

Moreyra, R.; Peleg, M.

Journal of Food Science 46 (6) 1918-1922 (1981) [En] [Dep. of Food Eng., Univ. of Massachusetts, Amherst, Massachusetts 01003, USA]

The bulk properties of powdered coffee creamer, infant formula, salt and sucrose at different levels of water activity were characterized by mechanical methods. These included loose bulk density, compressibility, cohesion, % irrecoverable work in compression and asymptotic modulus after stress relaxation. In the crystalline powders the physical characteristics generally followed the pattern established by the moisture content with an apparent critical water activity beyond which changes became drastic. In the creamer and formula which were very cohesive even in the dry form the changes in bulk properties were generally more gradual. The

rheological tests indicated that much of the physical changes in the salt and sucrose powders could be attributed to surface moisture. In the creamer and formula the plasticity of the particles material was also a major factor that affected the bulk behaviour. IFT

17

[Effect of heat treatment on flavour of soy milk.]

Okada, M.; Miura, Y.; Komeyasu, M.

Journal of Japanese Society of Food Science and Technology [Nippon Shokuhin Kogyo Gakkaishi] 27 (1) 30-33 (1980) [14 ref. Ja, en] [Hiroshima Food Res. Inst., Hiroshima-shi, Japan]

Changes occurring in soy milk flavour during heating at 95°C for various periods of time were examined by means of organoleptic evaluation, gel chromatography, analysis of volatile components and detn. of free amino acids. The beany flavour was largely removed after 15 min at 95°C. Heating for longer periods resulted in the development of volatile off-flavours and the degradation of free amino acids. [From En summ.] JA

18

Preparation of soymilk from soybean.

Arshad, M.; Aslam, M.; Sheikh, I. A.

Pakistan Journal of Scientific and Industrial Research 23 (5) 218-220 (1980) [12 ref. En] [PCSIR Lab., Lahore 16, Pakistan]

The preparation of soy milk free of bitter taste and beany flavour was studied. Conditions for obtaining a palatable milk from soybeans were standardized. Net protein utilization (NPU) of standardized soy milk was nearly the same as for skim milk (84.6 vs. 84.7%); protein efficiency ratio (PER) was 2.4 (vs. 2.6 for casein), NDP (net dietary protein) was 7.05 calories (vs. 7.55 for skim milk). RM

19

Mechanical cow gives milk made from soya.

Anon.

Food Engineering International 6 (1/2) 54-56 (1981) [En, de, fr, es]

A small-scale plant for production of soy milk (200 l/h), operated by 1-2 persons is briefly described. The plant comprises 3 sections: a disintegrator and centrifuge, in which beans are ground in hot water at 90°C; formulation tanks in which sugar, vitamins, minerals and flavouring are added; and a sterilizer/cooler. The plant is said to be particularly useful for institutions in Third World countries, as only soybeans need to be stored, not milk or dried milk. Possible applications in Brazil include hospitals and schools, to achieve an extension of cows' milk supplies blending 30% soy milk with cows milk. Economics of operation of the plant are improved if a small-scale drier is used in conjunction to process the residue; 1 kg soybeans will then produce 8 l soy milk + 300 g soy flour. DIH

20

[Bean curd production.]

Morinaga Milk Industry

Japanese Examined Patent 5 623 577 (1981) [Ja]

A continuous process for producing a sterilized, packaged bean curd product is described, in which synthetic resin containers are continuously blow moulded for immediate filling with a sterilized bean curd composition, followed by sealing. IFT

21

A simple, modified Gerber method for the rapid determination of fat in simulated dairy products.

Koeppen, B. H.

South African Food Review 7 (1, supplement) 113 (1981) [1 ref. En, af] [Dep. of Food Sci., Univ. of Stellenbosch, Stellenbosch 7600, South Africa]

A new method of fat detn. is described. Simulated dairy product (solid or liquid) was placed in a glass centrifuge tube; liquids were diluted with cold water and solids dissolved in hot water. Propanol and H_2SO_4 were added and the mixture was centrifuged at 1000–2000 rev/min for 10 min. Separated fat was solidified if necessary, removed and weighed, and any fat which was difficult to remove was dissolved in ether and separated.

A table of fat content of 7 coffee whiteners (30.73–35.25%), 3 tea whiteners (16.66–32.64%), 1 filled skim powder (20.12–20.32%), and 5 artificial cream whips (both powder and liquid forms, 26.58–36.10%) is provided, and shows that the method is reproducible. Application to chocolate and bakery products is considered. LH

22

[Soybean milk coagulation.]

Yoshikawa Shoji KK

Japanese Examined Patent 5 625 305 (1981) [Ja]

Process is described for the rapid coagulation of soybean milk, in which a basic amino acid or its salt is added to slow the rate of coagulation, thus yielding a soft curd. IFT

23

[Soybean curd.]

Morinaga Milk KK

Japanese Examined Patent 5 623 574 (1981) [Ja]

Process is described in which soybean milk heated to $\geq 128^\circ C$ is cooled, mixed with sterilized glucono- δ -lactone, packaged and heated in a water bath to 70 – $95^\circ C$. IFT

24

[Effects of heat treatment of soy milk, coagulants and yeast inoculation on texture of soy curd.]

Kawaguchi, Y.

Journal of Japanese Society of Food Science and Technology [Nippon Shokuhin Kogyo Gakkaishi] 26 (10) 434–441 (1979) [10 ref. Ja, en] [Yamanashi Prefectural Agric. & Forestry High School, Nishiyahata Ryuo-cho, Nakakoma-gun, Yamanashi-ken, Japan]

Curd preparation from soy milk was examined in an attempt to find procedures suitable for producing a cheese-like food. Soy milk treated by a UHT procedure ($135^\circ C$ for 2 s) produced a curd with insufficient hardness, springiness and chewiness for it to be suitable for making a cheese-like food. Studies were made of curd prepared from soy milk with the aid of a lactic starter (*Streptococcus thermophilus*) and 7 coagulants (4 salts and 3 acids). The lactic starter and 2 coagulants ($CaSO_4$ and glucono- δ -lactone) gave excellent results in respect of curd texture at the cutting stage and whey separation. Further studies involved inoculation with *Saccharomyces fragilis* and incubation of the pressed curd at $20^\circ C$ for 40 days. Curd hardness, cohesiveness, springiness and chewiness were examined during incubation; all but cohesiveness decreased. Use of a lactic starter and inoculation with *Sacc. fragilis* produced a smooth cheese-like texture in the curd. [From En summ.] JA

25

Development of a vegetable protein based tea whitener as a milk substitute for the low income consumers.

Aneja, R. P.

Gujarat Agricultural University Research Journal 6 (1) 61 (1980) [En] [Dep. Dairy Sci., Gujarat Agric. Univ., Anand, India]

After some initial investigation into presently used coffee whiteners, a low-cost tea whitener in liquid form was developed, based on vegetable protein. The proximate composition was 2% fat, 3% protein, and 8.5% milk solids not fat. The product is slightly sweeter and blander than milk, but is quite acceptable. LH

26

[Soybean treatment.]

Mitsubishi Chemical Industry KK

Japanese Examined Patent 5 626 386 (1981) [Ja]

Process is described in which unwashed, crushed soybeans are immersed in a hot aqueous solution containing a metal ion chelating agent to deactivate oxydizing enzymes, yielding, ultimately, a soy milk having increased nitrogen content, and free from beany odours. IFT

27

Evaluation of the botulism hazard from imitation cheeses.

Kautter, D. A.; Lynt, R. K.; Lilly, T., Jr.; Solomon, H. M. *Journal of Food Science* 46 (3) 749-750, 764 (1981) [6 ref. En] [Div. of Microbiol., FDA, Dep. of Health & Human Services, Washington, DC 20204, USA]

11 imitation cheeses (in which milk components are partially or completely replaced by nonmilk components) were studied for their ability to support growth and toxin production of *Clostridium botulinum* types A and B at 26°C. The a_w of the cheeses ranged from 0.942 to 0.973 and the pH from 5.52 to 6.14. Spores of 5 type A and 5 type B strains were inoculated into approx. 50 samples of each cheese. In 289 days only one type, an imitation mozzarella, became toxic. In 2 separate tests, 27 of 77 samples of imitation mozzarella contained toxin. The earliest toxic sample was noted in 26 days; however, the product was organoleptically unacceptable. Imitation cheese thus appears to pose no hazard from botulism, even under conditions of abuse. IFT

28

Cheese analog advantages range beyond economical aspects.

Bozzi, M. J.

Food Product Development 14 (6) 42, 44 (1980) [En]

Advantages of cheese analogues are cost savings, consistent quality, and stable supply compared to natural cheese. Cheese analogues are classified according to moisture content into: high-moisture analogues, intermediate-moisture analogues and fat-based low-moisture analogue. The composition, manufacture, functional properties and uses of the 3 classes are described. Tabulated data present analyses and ingredient lists for intermediate-moisture analogues and low-moisture analogues. VJG

29

Cheese substitutes.

Anon.

Food Processing Industry 50 (600) 48-49, 51 (1981) [En] [DPP-Schreiber Cheese Co., Milburn Road, Coleraine, Co. Londonderry BT52 1QR, UK]

Cheese substitutes or analogues are products in which some or all of the milk fat has been replaced by vegetable oils. They have the following advantages: can be tailored to a specific design since each component is added separately; have the advantage of dramatically lower levels of cholesterol; have an enormous price advantage over their 'natural' counterparts; and product consistency in colour, flavour and texture. DPP-Schreiber produce a Mozzarella flavour cheese substitute named Mozzalike and a Cheddar substitute called Cheddalike. VJG

30

Development of village scale beverage, coco-soya milk.

Varangoon, P.

Cocomunity APCC/QS/37, 7-12 (1981) [En] [Applied Scientific Res. Corp. of Thailand, Phahol Yothin Road, Bangkok, Bangkok, Thailand]

2 formulae of coco-soya milk were prepared from coconut milk and soybeans. The product can be made at domestic or community level in the villages by simply (i) blending dehulled boiled bean and coconut milk, or (ii) blending soybean extract with coconut milk. The milk provides about 6 g protein/200 g serving. Calculated calories/200 g serving are 160 in (i) and 132 in (ii).

UPLB

31

Influence of ethanolic soaking of soybeans on flavor and lipoxxygenase activity of soymilk.

Ashraf, H.-R. L.; Snyder, H. E.

Journal of Food Science 46 (4) 1201-1204 (1981) [14 ref. En] [Div. of Human Development, Southern Illinois Univ., Carbondale, Illinois 62901, USA]

Soymilks were prepared from soybeans soaked in 15% ethanol and in 15% ethanol plus 0.1M NaOH, 0.1M Na_2CO_3 or 0.1M NaHCO_3 for various times at 60°C. The ethanol was removed before processing the soybeans into soymilks, and the soymilks were analysed for composition, lipoxxygenase activity, thiobarbituric acid (TBA) number, and flavour (paintiness, grassiness, nuttiness, cereal, and astringency). Tables of results are included. The change in paintiness with time of soaking did not depend only on lipoxxygenase activity or on TBA number, but was related to the soaking conditions. Soaking in NaOH gave soymilks with more paintiness than soaking in either Na_2CO_3 or NaHCO_3 . IFT

32

[Effect of storage conditions on soybean protein.]

Yoshino, U.; Iwasaki, Y.; Okubo, M.; Okuyama, T.

Journal of Japanese Society of Food Science and Technology [Nippon Shokuhin Kogyo Gakkaishi] 24 (10) 526-529 (1977) [3 ref. Ja, en] [Tokyo Kasei Daigaku, 18-1, Kaga 1, Itabashi-ku, Tokyo, Japan]

Soybeans were stored at 30-50°C for ≤ 8 months. No marked changes were noted in colour or water absorption rate after 8 months at 30°C. Colour darkening and a decreased water absorption rate occurred after > 4 months at 40°C. Soybean milk prepared from soybeans which had been stored at 40°C contained less N and formed a softer curd than that prepared from soybeans which had been stored at 30°C. The level of water-soluble N in the beans tended to decrease during storage. [From En summ.] JA

33

[Milk protein meat substitute.]

Kuraray KK

Japanese Examined Patent 5 626 381 (1981) [Ja]

Fibrous milk proteins food contains milk protein fibre bundles. Production of the meat substitute comprises: working initial milk protein into a fibrous mass; treating the composition with an aqueous solution containing at least 1 salt of Na, K and/or Ca and an aldehyde-type crosslinking agent. The foods can replace meat, e.g. in hamburger steak production. AS

34

[Manufacture of a cheese-like product from soybean milk. IV.]

Matsuoka, H.; Fuke, Y.

Journal of Japanese Society of Food Science and Technology [Nippon Shokuhin Kogyo Gakkaishi] 24 (11) 553-558 (1977) [10 ref. Ja, en] [Dep. of Food & Nutr., Tachikawa Coll. of Tokyo, Azuma-cho, Akishima-shi, Tokyo, Japan]

Soybean milk was coagulated by lactic fermentation using *Streptococcus thermophilus*, *S. lactis* or a mixture of *S. thermophilus* and *S. lactis*. The curds obtained were ripened by *Penicillium caseicolum*. Curd pH was approx. 6.5 after ripening for 2 wk. Contents of water-soluble N and free amino acids increased during ripening. Amino acids liberated in comparatively large amounts included glutamic acid, aspartic acid and lysine. In order to retard ripening, the curds were coated with paraffin after removal of surface mould, and stored at 5°C. Trypsin inhibitor activity did not change during ripening. [From En summ.] JA

35

Lactic fermentation of soymilk. [Review]

Patel, A. A.; Waghmare, W. M.; Gupta, S. K.

Process Biochemistry 15 (7) 9-10, 12-13 (1980) [55 ref. En] [Nat. Dairy Res. Inst., Karnal, India]

Research on lactic fermentation of soy milk is reviewed under the following headings: soy milk as substrate for growth of lactic cultures, covering effects of heat treatment, other processing parameters, presence of fermentable carbohydrates and certain additives; other culturing conditions affecting growth of lactic cultures in soy milk; quality of cultured soy milk, including flavour and texture; growth of aroma bacteria and development of flavour compounds in soy milk; and special products from lactic fermented soy milk. SP

36

Comparative acceptability of soymilks produced by different processing methods.

Escueta, E. E.; Banzon, J. A.

Philippine Journal of Science 108 (1/2) 55-63 (1979) [19 ref. En] [Dep. of Food Sci. & Tech., UP at Los Banos, College, Laguna 3720, Philippines]

Soymilks were prepared by 5 different methods: (i) boiling-water grind technique, (ii) cold grind process, followed by 30 min boiling in a steam jacketed kettle, (iii) cold grind process followed by 30 min boiling by direct steam injection, (iv) soaking + 3 min immersion boiling and (v) 5 min immersion boiling. Soymilks produced by these methods were acceptable to trained Philippino tasters. Addition of 1% chocolate powder increased further the acceptability of the soymilks. The study showed that some factors other than lipoxigenase action on soybean fat affected the acceptability of the soymilks. UPLB

37

Soya bean - dairy blends. [Review]

Mann, E. J.

Dairy Industries International 47 (1) 11-12 (1981) [20 ref. En] [Commonwealth Bureau of Dairy Sci. & Tech., Shinfield Reading RG2 9BB, UK]

The author reviews recent developments in the formulation of blends from dairy ingredients and soybean products, such as dried milk proteins/soy isolates, defatted soybean meal/skim milk, soy protein/caseinate, soybeans/cheese whey curd, soybeans/natural cheese, textured soy protein/dried whey products resembling meat, and soy flour as a constituent of a low-fat dairy spread. FL

38

[Use of the concepts 'synthetic' or 'artificial' as applied to foods.] Zur Verwendung der Begriffe 'künstlich' und 'Kunst' bei Lebensmitteln.

Trenkle, K.

Zeitschrift für das Gesamte Lebensmittelrecht (ZLR) 8 (1) 1-16 (1981) [28 ref. De, en, fr]

The attitude of the public towards 'artificial' or 'synthetic' (Kunst-, künstlich) as applied to foods and the legal aspects of such products are discussed on the basis of dictionary definitions, interpretations and numerous examples of types of products involved. HBr

39

A method for the quantitative evaluation of emulsion stability in coffee whiteners.

Pearce, R. J.; Harper, W. J.

Journal of Food Science 47 (2) 680-681 (1982) [En] [CSIRO Div. of Food Res., Dairy Res. Lab., PO Box 20, Highett, Victoria 3190, Australia]

A method is described for quantitatively measuring the extent of emulsion destabilization (feathering) when liquid coffee whiteners are added to hot coffee. Coffee whitener is added to standard hot coffee solution (pH 4.9, 90°C) in a 0.5% fat Babcock bottle. Feathering is observed on the surface of the whitened coffee in the wide portion of the bottle. Dense corn syrup solution is layered beneath to raise the level of the surface so that the coagulated material is concentrated into the graduated capillary tube. After standing to allow compaction, the length of the column of coagulated material is measured. IFT

40

Quality control in coconut milk processing. II. Microbial contaminants.

Mabesa, R. C.; Rosario, R. R. del

Philippine Agriculturist 62 (3) 167-175 (1979) [14 ref. En] [Dep. of Food Sci. & Tech., UP at Los Banos, College, Laguna, Philippines]

The study was conducted to determine the types of organisms that may be introduced by the raw material, processing equipment and other utensils used in the processing of coconut milk. In addition, the influence of

sanitization of the microflora was studied. A large number of bacteria, moulds, yeasts, as well as coliform organisms were present in coconut milk. The use of sanitizing agents resulted in a significant reduction of the types of organisms present in the cream. Some of the persistent bacteria were members of the following genera: *Bacillus*, *Achromobacter*, *Microbacterium*, *Micrococcus*, *Brevibacterium* and some coliform organism. Among the genera of yeasts and moulds found in the product were *Penicillium*, *Saccharomyces*, *Geotrichum*, *Mucor* and *Fusarium*. Organisms isolated from the different materials used for processing were usually found in the final product. These findings showed the importance of plant sanitation and personal hygiene in the processing of coconut milk. [See FSTA (1977) 9 12] 1945 for part I.] UPLB

41

[Method for treating milk protein fibres.]

Matsumura, T.; Akitani, T.; Kawai, S.; Okura, S.; Akasu, H.; Yagi, N.; Kanemitsu, E.; Nakaji, J. (KK Kurare)

Japanese Examined Patent 5 639 854 (1981) [Ja]

Milk protein fibres in fibril or multifilament form are buffered at pH 4.5–6.5 with aqueous alkaline solution. A mixture of polyphosphates is added to the wet fibres (standard moisture content 66%) at 0.001–0.006 : 1 and then the whole is mixed with cheese melted at 60–80°C. The aim is to obtain a product with cheese flavour and a meat-like texture. BWH

42

[Method for making soybean milk yoghurt.]

Kanda, H.; Hesselstine, C. D.; Wong, F. E. (Nisshin Seiyu KK)

Japanese Examined Patent 5 628 130 (1981) [Ja]

Dried whey and sweetener are mixed with soybean milk, the mixture is heat sterilized and stabilizers are added. After cooling, the mixture is cultured with a combination of *Lactobacillus acidophilus* NRRL B1910 and *L. acidophilus* NRRL B2092 in roughly equal proportions. These strains can utilize the raffinose in soybean milk, responsible for flatulence, and at the same time contribute to the removal of the beany taste. In an example, 20 g dried whey and 50 g sugar were added to 1 litre soybean milk and the product was incubated at 37°C for 24 h. It had a pH of 4.2 and combined 9×10^8 viable cells/g; it kept well at 5°C for 19 days and had an acceptable flavour and smell. BWH

43

Proteinaceous food product.

Sand, R. E.; Johnson, R. E. (Anderson, Clayton & Co.)
United States Patent 4 303 691 (1981) [En]

A proteinaceous food product simulating cheese comprises a blend of: soy protein selected from soy isolate, cold insoluble soy fraction, or their combinations; gelatin; a hydrocolloid gum, preferably including either xanthan-locust bean gum mixtures and carrageenans; fat; and water. Other desirable ingredients include an emulsifier, salt, chelating agent, colouring agent and flavouring. AS

44

Studies on the processing and properties of soymilk.

Sarker, A. A.; Khaleque, A.

Bangladesh Journal of Agriculture 3 (1) 277–282 (1978) [12 ref. En] [Bangladesh Agric. Res. Council, Dhanmondi, Dacca-5, India]

The effects of pH, temp. and Ca salts on the precipitation of protein from soymilk were studied and optimum conditions for its recovery standardized. Max. recovery (93.8%) was obtained at pH 4.5 (isoelectric point) after heating for 3–5 min at 65°C. Similar recovery (92.3%) was obtained when protein was precipitated by 1% CaSO₄ and heated to 65°C. The proximate composition of protein isolates and whey solids obtained by CaSO₄ or isoelectric precipitation is tabulated. Possible food uses (e.g. for confectionery or bakery products) are briefly discussed. RM

45

Co-processing soy proteins and milk proteins with commercial ultrafiltration membranes.

Lawhon, J. T.; Manak, L. J.; Lusas, E. W.

Journal of Food Science 47 (3) 800–805 (1982) [En]
[Food Protein Res. & Development Cent., Texas A&M Univ., College Station, Texas 77843, USA]

Ultrafiltration (UF) membranes were used to co-process soy protein extract and skim milk, to produce soy-milk food ingredients with protein efficiency ratios (PER) of ≥ 2.5 . Extracts from 2 commercial soy flours and ground soybeans were blended with commercial skim milk before and after ultrafiltration. Protein blends of 67% soy–33% milk, 50% soy–50% milk and 33% soy–67% milk were processed. Soy-milk products possessed high N solubility and light colour. Lysine contents of soy-milk products ranged from 7.34 to 6.82% in the protein. PER ranged from 2.36 for 33% soy–67% milk to 1.47 for UF soy isolate without milk. Soy and milk proteins exhibited some synergistic effects, but none of the soymilk PER reached the 2.5 level. IFT

46

Low-fat imitation sour cream.

Baker, D. B. (Pro-Mark Co.)

United States Patent 4 288 459 (1981) [En]

The product, containing not more than 2% fat and 16–20% TS, is made by blending stabilizers, flavouring agents and preservatives with low-fat milk at 165–175°F, adding Bakers' or Cottage cheese curd while adjusting the temp. to 90–110°F and pumping it to a homogenizer for high-pressure homogenization. The resultant product is packaged and stored under refrigeration. EJM

47

Manufacture of a high quality ice cream. II.

Substitution of fresh cream fat by butter, cottonseed and corn oils.

Youssef, A. M.; Salam, A. E.; Salama, F. A.

Egyptian Journal of Dairy Science 9 (1) 51–58 (1981)
[9 ref. En, ar] [Dep. of Agric. Ind. (Dairy Sect.), Univ. of Alexandria, Alexandria, Egypt]

Milk fat in ice cream mixes, which contained 14% fat, 10% milk SNF, 15% sugar and 0.5% gelatin, was partially substituted by anhydrous butter oil, cottonseed oil or maize oil; glycerol monostearate was used as

emulsifier. Mixes and resulting ice creams were tested for viscosity and sp. gr., and ice creams were also tested for overrun. Organoleptic scores of ice creams were best with substitutions of 50% butter oil (without emulsifier) and up to 25% cottonseed oil or maize oil (with emulsifier). Higher concn. imparted off-flavours to the ice cream. [See preceding abstr. for part I.] DMK

48

Textural properties of Mozzarella cheese analogs manufactured from soybean.

Yang, C. S. T.; Taranto, M. V.

Journal of Food Science 47 (3) 906-910 (1982) [En]

[Dep. of Food Sci., 104 Dairy Manufactures Bldg., 1302 W. Pennsylvania Ave., Univ. of Illinois, Urbana, Illinois 61801, USA]

Mozzarella cheese analogues were produced from soybeans or soy protein products, gelatin, gum arabic and other ingredients. The method for production of the cheese analogue consisted of the following: mixing at controlled temp. to obtain a homogeneous mass; and tempering at 4°C for 24 h. Several analogue formulations were evaluated, and factors such as pH, fat content, salt content, influencing textural characteristics were studied with an Instron Universal testing machine and a modified Weissenberg test. The physical and functional properties of the final product were similar to those of natural Mozzarella cheese (low moisture part-skim) tested and evaluated with the same experimental methods. IFT

49

[Determination of thallium in various inorganic and organic matrices - a simple photometric routine procedure with brilliant green.] Bestimmung von

Thallium in verschiedenen anorganischen und organischen Matrices - ein einfaches photometrisches Routineverfahren mit Brillantgrün. Scholl, W.

Landwirtschaftliche Forschung, Sonderheft No. 37, Kongressband 1980, 275-286 (1981) [12 ref. De, en, fr] [Staatliche Landwirtschaftliche Untersuchungs- & Forschungsanstalt, D-7500 Karlsruhe/Durlach, Federal Republic of Germany]

The detn. of Tl in inorganic and organic materials via colour formation with brilliant green and photometric detn. at 627 nm is described. A concn. range of 10-5000 ng/analysis (optimum range 50-5000 ng) or up to 2000 mg/kg can be accurately determined. Tabulated data show results of applications to milk and milk substitutes, and to vegetables from polluted and non-polluted environments. Concn. in milk ranged from 0.010 to 0.033 mg/kg DM (mean 0.018), in milk replacer from 0.100 to 0.230 (mean 0.140), concn. in lettuce (polluted environment) 5.9 (vs. 0.03 in non-polluted environment), in white cabbage 24.8 (vs. 0.10), but levels in roots (carrots) and fruits (zucchini) were practically unaffected. RM

50

[Chemical composition and nutritional characteristics of powdered soy milk.]

Travaglini, D. A.; Aguirre, J. M. de; Travaglini, M. M. E.; Sales, A. M.; Angelucci, E.; Arima, H. K.

Boletim do Instituto de Tecnologia de Alimentos, Brazil 18 (3) 386-393 (1981) [22 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, Sao Paulo, Brazil]

Studies were conducted on a spray-dried soy milk product. Data are given for proximate composition, amino acid composition, protein efficiency ratio (PER), net protein retention (NPR), mineral content and vitamin content of the product. Results are compared with literature data for other dried soy milks, and for dried cows' milk. Protein content was 47.6%; fat content was 27.6%. Amino acid composition was similar to that of dried cows' milk, apart from a deficiency of S-amino acids. PER was 2.15 without methionine supplementation, 2.45 with 0.3% methionine supplement (vs. 2.50 for casein). NPR values were 3.50 with and 4.10 without methionine supplementation (vs. 4.0 for casein). The dried soy milk was a good source of minerals and vitamins. AJDW

51

[Acceptability of caramelized sweet condensed milk (doce de leite pastoso) made from cows' milk and liquid soy protein extract.]

Souza, G. de; Shirole, I.; Valle, J. L. E. do;

Ferreira, V. L. P.; Figueiredo, I. B. de

Boletim do Instituto de Tecnologia de Alimentos, Brazil 18 (3) 395-411 (1982) [22 ref. Pt, en] [Inst. de Tecnologia de Alimentos, Campinas, SP, Brazil]

A large-scale consumer preference test revealed no significant differences in acceptability of 4 types of doce de leite containing resp. 81.14, 71, 60.86 and 50.41% cows' whole milk and 0, 10.14, 20.28 and 30.43% soy protein extract, together with 13.39% sucrose, 4.87% glucose and 0.6% coconut milk. The extract improved the texture of the product, greatly reduced lactose crystallization and extended shelf life to 180 days or more at ambient temp. ADL

52

[Simulated human milk for young babies.]

Andreevskaya, L. V.; Zabudskaya, L. F.;

Kashkareva, E. I.; Ott, V. D.; Gerasimenko, V. L.;

Gavrilenkov, N. P.; Fedorchenko, L. V. (Union of

Soviet Socialist Republics, Ukrainskii Nauchno-

issledovatel'skii Institut Myasnoi i Molochnoi

Promyshlennosti; Union of Soviet Socialist Republics

Kievskii Nauchno-issledovatel'skii Institut Pediatrii,

Akusherstva i Ginekologii)

USSR Patent 686 711 (1979) [Ru]

Milk of improved nutritive value contains (as kg ingredients/t dried product): whole milk 3350-3580; dried decalcinated whey, 310-320; cream, 260-280; dextrin-maltose, 32-110; beet sugar, 71-135; vegetable oil, 34-43; L-cystine, 0.650-1.0; vitamin A, 0.0036-0.004 vitamin D, 0.00011-0.00012; preparation of vitamin C

and nicotinic acid, 1.460–1.770. For a liquid product the proportions are (kg ingredients/t): whole milk, 580–600; dried decalcinated whey, 40–45; cream, 30–33; dextrin-maltose, 5.5–17.0; beet sugar, 11.0–23.0; vegetable oil, 7.2–7.8; L-cystine, 0.100–0.150; vitamin A, 0.00055–0.00065; vitamin D₂, 0.000017–0.000019; preparation of vitamin C and nicotinic acid, 0.075–0.275. W&Co

53

Imitation cheese base.

Socio, P. de; Kaporsvsky, M.; Tropp, J. S. (Jubilee Foods Inc.)

United States Patent 4 254 156 (1981) [En]

The base, suitable as an imitation cheese cake filling, is obtained by first preparing 4 separate components: a custard component; a gelatin component; a dry sucrose/starch mixture; and an imitation cream cheese component consisting of cultured or acidified vegetable oil, and then mixing these components at 45–50°F in a mixer to obtain a slurry product. The slurry is aerated to obtain a 15–20% air cell structure, filled into suitable containers and frozen for a sufficient period to allow the gelatin to gelatinize. EJM

54

Protein-free synthetic milk or the like.

Buddemeyer, B. D.; Neville, W. A.; Bourne, R. G. (RGB Laboratories Inc.)

United States Patent 4 310 561 (1982) [En]

Protein-free preferably non-dairy, emulsified food products, such as low-sugar or sugar-free synthetic milk and creams, are described that exhibit desirable organoleptic properties virtually identical to or even superior to those of the corresponding dairy products, and have excellent storage and freeze-thaw characteristics. The products can be in liquid, frozen or dried form and include a base: this base consists essentially of non-sweet, water soluble, carbohydrates having a DE of approx. 10–70; fat in particulate form, e.g. fat from sunflower and cocoa butter; and an emulsifier to maintain the stability of the aqueous dispersion. Stability of the products is achieved without the presence of protein or large amounts of sugar, so that the products can be used to replace traditional relatively non-sweet dairy products in the diet of e.g. persons having an intolerance to milk protein. The products may also contain nutritional additives, flavouring and colouring agents, pH modifiers, buffers, sweeteners and stabilizers. Products include liquid hypoallergenic synthetic milk, non-dairy milk concentrate and protein-less non-dairy creamers. [From En summ.] RAW

55

New food uses for coconuts.

Anon.

Cocommunity Newsletter 11 (3) 6 (1981) [En]

A recipe is given for producing "Tahu" (a favourite Philippine snack food) made from soybean milk with coconut milk. RM

56

Imitations giving natural cheese a strong competitive tussle.

Graf, T.

Dairy Record 82 (7) 94–95 (1981) [En] [Dep. of Economics, Univ. of Wisconsin, Madison, Wisconsin 53706, USA]

Per capita consumption of natural cheese in the USA more than doubled (reaching 17.1 lb) between 1950 and 1980. Markets for natural cheese are now threatened, however, by imitation cheese, output of which reached 197 million lb in 1980, amounting to 5% of total US cheese production (vs. 2% in 1978) and 56% of the 350 million lb cheese purchased by the Commodity Credit Corporation. Most varieties of natural cheese, including Cheddar, Colby, Gouda and Mozzarella, have an imitation cheese counterpart. Partial imitation cheeses are made from vegetable fat + domestic milk SNF, while complete imitation (analogue) cheeses are made from vegetable fat + imported casein or non-dairy proteins. 37% of the 152 million lb casein imported in 1980 went into imitation cheese. Manufacture of imitation cheese is far more profitable than production of natural cheese because imported casein is much cheaper than domestic milk SNF and vegetable fat is much cheaper than milk fat. Labelling requirements for imitation cheese vary widely from state to state. In only 39% of the states is the word "imitation" mandatory on the label, regardless of nutritional equivalency to natural cheese, and only 10% specifically prohibit production of complete imitation cheese. A survey of retail stores revealed that although only 2% of shelf space on average was used for imitation cheese, as such, 36.2% was devoted to frozen pizzas containing it. Prices and marketing margins were much lower for imitation than for natural cheese. ADL

57

Fermentation of blanched-bean soymilk with lactic cultures.

Patel, A. A.; Gupta, S. K.

Journal of Food Protection 45 (7) 620–623 (1982) [16 ref. en] [Div. of Dairy Tech., Nat. Dairy Res. Inst., Karnal 132001, India]

Soy milk prepared from dehulled, blanched soybeans ground in water or in neutralized citric acid whey from channa-making, was fermented for 14–16 h with *Streptococcus lactis* subsp. *diacetylactis* or a lactic culture (LF-40) at 30°C, or with *S. thermophilus* or *Lactobacillus bulgaricus* at 37°C. Sensory evaluations were carried out by a trained panel. Enrichment of soy milk with 0.5% lactose enhanced acid production, especially with LF-40, and improved flavour and texture. Acid production by LF-40 or *S. lactis* subsp. *diacetylactis* did not differ significantly in lactose-fortified vs. whey-soy milk, but was greater in whey-soy milk when using *S. thermophilus* or *L. bulgaricus*. Flavour of the whey-soy product scored higher than that of the plain soy milk with all 4 cultures. JMa

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